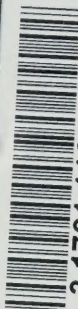


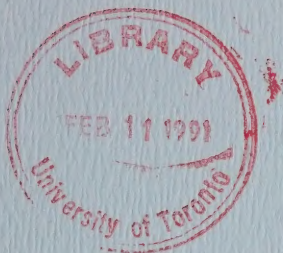
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# ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 285

DATE: Thursday, January 31, 1991

BEFORE:

A. KOVEN Chairman

E. MARTEL Member

FOR HEARING UPDATES CALL (COLLECT CALLS ACCEPTED) (416)963-1249

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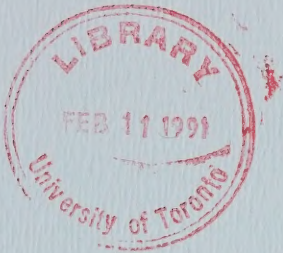




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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL  
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR  
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental  
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental  
Assessment for Timber Management on Crown  
Lands in Ontario;

- and -

IN THE MATTER OF a Notice by the  
Honourable Jim Bradley, Minister of the  
Environment, requiring the Environmental  
Assessment Board to hold a hearing with  
respect to a Class Environmental  
Assessment (No. NR-AA-30) of an  
undertaking by the Ministry of Natural  
Resources for the activity of timber  
management on Crown Lands in Ontario.

-----

Hearing held at the offices of the Ontario  
Highway Transport Commission, Britannica  
Building, 151 Bloor Street West, 10th Floor,  
Toronto, Ontario, on Thursday, January 31,  
1991, commencing at 9:45 a.m.

-----

VOLUME 285

BEFORE:

MRS. ANNE KOVEN  
MR. ELIE MARTEL

Chairman  
Member





A P P E A R A N C E S

MR. V. FREIDIN, Q.C.)	
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MS. K. MURPHY )	RESOURCES
MR. B. CAMPBELL )	
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I N D E X   O F   P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>CHRIS MASER</u> , Resumed	51008
Continued Cross-Examination by Ms. Cronk	51008
Re-direct Examination by Mr. Lindgren	51127





I N D E X   O F   E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
1684	Eight-page scientific review of Mr. Maser's book, The Redesigned Forest, published in the Journal of Forestry in the December 1990 edition, Volume 88, No. 12.	51027
1685	Article entitled A General Decline of Forests in Central Europe, Symptoms, Developments and Possible Causes by Peter Schutt and Ellis Cowling.	51046
1686	Excerpt from a collection of formal scientific presentations at the 7th North American Soils Conference entitled Sustained Productivity of Forest Soils edited by Gessel, Lacate, Weetman and Powers.	51076
1687	Three-page review by Professor Hamish Kimmins of the University of British Columbia of ealier work done by Mr. Maser entitled Review of Forest Primeval: The Natural History of an Ancient Forest.	51096
1688	MNR Statistics for the years 1988/1989.	51129





1 ---Upon commencing at 9:50 a.m.

2 MADAM CHAIR: Please be seated.

3 Ms. Cronk?

4 MS. CRONK: Madam Chair, I feel obliged  
5 to start the morning by indicating that while I was on  
6 the Gardener Expressway trying to get here from the  
7 airport this morning there was a fleeting moment in  
8 time when I prayed for a delay, but I am not  
9 responsible for a delay associated with elevators or  
10 involving anyone in this room, although I did speak out  
11 loud as it were with the thought that I might be  
12 provided a few extra moments.

13 That's the best I can do at levity, Mr.  
14 Maser, this morning. May I ask you to be more serious  
15 for a moment with me.

16 CHRIS MASER; Resumed

17 CONTINUED CROSS-EXAMINATION BY MS. CRONK:

18 Q. You were asked a number of questions  
19 by Mr. Lindgren concerning the terms and conditions  
20 proposed by Forests for Tomorrow. Do you recall there  
21 was some discussion about those?

22 I am not sure that you need to have them  
23 before you; if you do, indicate that.

24 A. I think I do. Let me check. My pile  
25 is growing.

1 Q. No, I'm sorry, what I was suggesting  
2 is you may not have to have them in front of you, but  
3 if you wish to, that's fine.

4 A. If I don't have to have them that's  
5 fine.

6 Q. My question is simply this: Your  
7 attention was directed to, for example, term and  
8 conditions 28, 29 and 30 among others as I now recall.  
9 Did you draft or prepare those terms and conditions?

10 A. No, Ma'am. I had never seen them  
11 before.

12 Q. You had never seen them before.  
13 Had you seen them before Mr. Lindgren asked you --

14 A. I take it back. They may have been  
15 sent, but I didn't look at them. I mailed the bundle  
16 back.

17 Q. So you had --

18 A. I had not seen them before they were  
19 here that I can recollect.

20 Q. You had no participation--

21 A. I had nothing to do with the writing.

22 Q. --in their preparation?

23 A. No.

24 Q. And didn't provide advice  
25 concerning --

1                   A. If I had they would have been written  
2 differently.

3                   Q. I take from that you didn't see the  
4 language of them or the nature of them until you came  
5 to give your evidence here? You didn't actually look  
6 at them until then?

7                   A. Not that I remember, but I didn't pay  
8 that much attention to what was sent. If I read them  
9 through I don't recollect.

10                  Q. All right. Now, you recall that  
11 yesterday we were speaking, Mr. Maser, about the, among  
12 other matters, observations that you made at pages 5  
13 and 6 of your witness statement concerning the design  
14 by nature of forests.

15                  A. Yes.

16                  Q. And some of the principles associated  
17 with that. Could I ask you, if you would, please, to  
18 consider as well the evidence that you have given to  
19 the Board regarding plantation management generally,  
20 and I am going to ask for your confirmation as to  
21 whether I understand your evidence on this point -- on  
22 this issue correctly or not.

23                  As I understood what you said in your  
24 evidence-in-chief to Mr. Lindgren, you indicated that  
25 you are concerned about the plantation management model



1       that was adopted and followed in Europe?

2                   A.   Yes, Ma'am, that's where we got ours.

3                   Q.   That's where ours came from?

4                   A.   Yes, Ma'am.

5                   Q.   As I understood what you were  
6       suggesting, you indicated that there was research by  
7       Plochmann which you have produced in your source books  
8       provided with your witness statement and to which you  
9       referred in your oral evidence that reports that  
10      productivity in German forests, for example, has been  
11      decreasing? You referred to that research?

12                  A.   Yes, Ma'am.

13                  Q.   Yes. As I understand it, it is also  
14      your evidence to this Board that the temperate  
15      coniferous forests in Europe are dying. That was the  
16      phrase you used, they were dying?

17                  A.   Yes, waldsterben.

18                  Q.   I'm sorry?

19                  A.   What is considered waldsterben.

20                  Q.   I am not getting it, I can't hear  
21      you.

22                  A.   Waldsterben.

23                  Q.   Yes, and that is the German term for  
24      dying forests?

25                  A.   Yes?

1 Q. I am not even going to attempt to  
2 pronounce that as you do, sir.

3 The importance of the issue, as I  
4 understand it, is you have said to the Board and  
5 expressed your view that there is a problem in the  
6 European forests, that they are in fact dying and you  
7 were using Germany as an exemplification of that.

8 Do I understand that to be your evidence?

9 A. Yes.

10 Q. For example, for confirmation of that  
11 you have made that exact point, as I understand it, in  
12 your written evidence in your witness statement in  
13 various sections of the witness statement and you were  
14 asked some questions about that in the interrogatories.  
15 Do you remember that?

16 A. No, I don't.

17 Q. All right. Could I ask you --

18 A. I accept that. I don't remember.

19 Q. Could I ask you, so that you have an  
20 opportunity to refresh your recollection about it, to  
21 go to Exhibit 1677 which is one of the bundles of  
22 interrogatories that we looked at together yesterday.  
23 It is the one beginning with question No. 8, Exhibit  
24 1677.

25 A. I have it.

1 Q. Could I ask you to go to Question 18,  
2 please. Do you have that? It is the second one in.

3 A. Okay.

4 Q. In this interrogatory reference was  
5 made in the first question asked to a statement that  
6 you had made at page 8 of your written witness  
7 statement and the statement was that:

8 "The timber industry, particularly in  
9 areas where considerable native forest  
10 remains, operates in a perpetual  
11 expansionistic mode and as a result the  
12 world's forested resources are rapidly  
13 shrinking and in some cases local  
14 climates are changing accordingly."

15 And then you referred to some research or  
16 at least a particular author. Do you see that?

17 A. Yes, Ma'am.

18 Q. You were asked a number of questions  
19 about it, but before we come to that, do I understand  
20 then it to be your view not only that the temperate  
21 coniferous forests of Europe are dying, as you  
22 described to the Board, but as well as a general  
23 proposition that the world's forest resources are  
24 rapidly shrinking?

25 A. Yes, Ma'am.



1 Q. Now, you were asked two questions in  
2 particular of those assertions and the first had to do  
3 with whether it was your view that the timber resources  
4 in the area of the undertaking, meaning in northern  
5 Ontario, were rapidly shrinking.

6 You were specifically asked whether that  
7 was your view and if it was to indicate what the basis  
8 for that view was. Do you see that in the second  
9 paragraph under sub (a)?

10 A. Yes, Ma'am, I do.

11 Q. All right. The answer provided with  
12 respect to that question was as follows:

13 With respect to the second question, it  
14 is the author's view that the timber  
15 resource within the world, including  
16 Ontario, is rapidly shrinking."

17 Stopping there for a moment. I take it  
18 that that was your view?

19 A. Yes, Ma'am.

20 Q. The subparagraph goes on to indicate  
21 that:

22 "Forests for Tomorrow notes that in their  
23 within statement No. 6 there is an  
24 indication of a long-term decline in  
25 future wood supply in Ontario." Sorry

1 No. 5.

2 A. Say that again?

3 Q. Yes. The second sentence of that  
4 subparagraph is an indication that Forests for Tomorrow  
5 is noting in its witness statement No. 5 - I said  
6 6, I was in error - indicated a long-term decline in  
7 future wood supply in Ontario.

8 Am I correct in concluding that that  
9 sentence is an observation by Forests for Tomorrow, it  
10 is the sentence before that is an expression of your  
11 view?

12 A. That's correct.

13 Q. You haven't read Forests for  
14 Tomorrow's witness statement No. 5; have you?

15 A. Not that I recollect. If I did it  
16 wouldn't make any difference.

17 Q. Well, it makes a difference in this  
18 sense: I am not to take from this, am I, that you are  
19 endorsing the contents of that witness statement?

20 A. No.

21 Q. With respect then to the proposition  
22 that the timber resource in Ontario is rapidly  
23 shrinking, that opinion, which I understand to be yours  
24 in this part of the answer, was that based on a general  
25 reflection of the state of the world's timber inventory

1 or were you expressing a view based on considerations  
2 of actual supply and demand, surplus/deficit situations  
3 regarding timber in northern Ontario?

4 A. No, that was my view as the world in  
5 general because where it is shrinking every place else,  
6 as I said before, I do not believe in special cases;  
7 boundaries to me make no difference.

8 Q. All right. And it was in that  
9 context that you expressed that opinion?

10 A. That is correct.

11 Q. So if we were to look at it purely in  
12 terms of the area of northern Ontario, I take it it  
13 would be fair to suggest that it would be certainly no  
14 more than an assumption on your part that in northern  
15 Ontario per se the timber inventory is in fact  
16 shrinking?

17 A. That's correct.

18 Q. With respect to the first part of the  
19 answer, the question that you were asked, this had to  
20 do with the suggestion that the timber industry,  
21 particularly in areas where considerable native forest  
22 remains, operates in a perpetual expansionistic mode,  
23 you will understand, sir, that I acting for Industry  
24 had some input from my clients on that and they had  
25 some curiosity about it.



1                   So you were asked essentially in the  
2       first subparagraph under subparagraph (a) to provide  
3       any facts you relied upon, if any, to suggest that the  
4       timber industry in this area, the area of the  
5       undertaking, operated in that fashion and the answer  
6       that was provided was a suggestion that we take a look  
7       at premise three to the interrogatory?

8                   A. That is correct.

9                   Q. You will recall yesterday I was  
10      suggesting to you that one must be careful in referring  
11      to the Industry at large and I think you agreed with me  
12      in that.

13                  Would it be fair of me to suggest that  
14      that comment was a generalized comment, and is it  
15      correct that you were not referring specifically to any  
16      consideration of the Industry in this province when you  
17      made that statement?

18                  A. That is correct. I was referring to  
19      the industry that operates under the, shall we say,  
20      rules of the economic free enterprise that we use; in  
21      other words, the capitalistic system.

22                  This is an interesting thing because in  
23      capitalism expansion is the way it goes, otherwise the  
24      industry or the U.S. is not considered to be healthy  
25      unless it is growing. One cannot grow in perpetuity

1 which is expansion without depleting the resources. It  
2 is simply not biologically feasible with the increase  
3 population.

4 I think the challenge we face is in this  
5 economic view there is no mechanism built in for  
6 decline stablization or sustainability. We have no  
7 mechanism in the economic view of capitalism that says  
8 it is okay not to constantly be growing.

9 To me the recession we are in, what if  
10 this stabilized and were sustainable in a cycling state  
11 within the myth that we are not growth, would that be  
12 okay. It is not in the capitalistic view and we do  
13 operate under capitalism; therefore, I made that  
14 statement. If you want to cut out Ontario and say  
15 within this little area are you speaking specifically  
16 of this, the answer is no.

17 Q. Well, just to be sure that I am being  
18 fair to you but that the evidence is also accurate,  
19 what I am suggesting to you, to put as candidly as I  
20 can, you have no basis of information whatsoever to be  
21 assessing the current mode of operation of Industry in  
22 Ontario, expansionistic or otherwise?

23 A. That is's correct.

24 Q. In terms of global economic theory  
25 and the kinds of observations that you just offered,

1 would I be correct in assuming that they are your  
2 personal observations and your personal views of  
3 economic capitalism and how that fits in or does not --

4 A. No, They are not.

5 Q. They are not your personal  
6 observations?

7 A. I have read that in a number of  
8 articles.

9 Q. My point being --

10 A. I accept to accept that view if  
11 that's what you are getting at. Other people may see  
12 it differently.

13 Q. What I am suggesting to you as well,  
14 sir, is you are not a trained economist and you are not  
15 suggesting by the remarks you just made that you are?

16 A. No, but I do not have to be a trained  
17 economist to see what's obvious.

18 Q. Or to have your own views on it?

19 A. That's correct.

20 Q. I quite understand. And all I am  
21 suggesting to you is you don't bring to those remarks  
22 either a political science or an economic trained  
23 background?

24 A. I bring no expertise.

25 Q. Now, the other aspect of your

1 evidence that relates to all of this, as I understood  
2 it - and again I want to make sure I understand the  
3 basic premises because if I have those wrong there is  
4 no pointing in our discussing it - I understood you to  
5 be saying that the difficulties in your view with  
6 plantation management that you described and as you  
7 defined it to Mr. Lindgren related to or were caused by  
8 intensive management; is that correct?

9 A. That's correct.

10 Q. All right.

11 A. Plantation management by definition  
12 is intensive management.

13 Q. And that is the case I suggest  
14 because of the way that you defined it to Mr. Lindgren  
15 and when he asked you what plantations management meant  
16 to you, you said, as I recall, that it was the planting  
17 of trees in rows, cut and plant, cut and plant, cut and  
18 plant ad infinitum.

19 That's pretty close to verbatim what I  
20 wrote down, your view, your definition of what  
21 plantation management means.

22 A. Yes. However, they don't actually  
23 have to be planted in rows to be a plantation. The  
24 cut, plant, cut, plant is the plantation cropping mode.

25 Q. I understand.



1                   A. You can drop the rows if you wish. I  
2 would submit that whether they are in rows or not is  
3 not that important. They generally are.

4                   Q. But in general terms that's the mode  
5 of activity--

6                   A. That's correct.

7                   Q. --that you regard as being plantation  
8 management?

9                   A. What I regard as a plantation are  
10 acres which are planted to be cut, to be planted to be  
11 cut, to be planted to be cut with no rest assuming that  
12 soil, water, air, sunlight and climate are going to be  
13 constants which is the assumption behind the plantation  
14 model, that the only variable that one manipulates is  
15 the tree.

16                  Q. All right. There is also in your  
17 concept of plantation management, as I understand that  
18 definition, an underpinning of intended uniformity; is  
19 that fair?

20                  A. In most cases, yes.

21                  Q. What you are really inferring in that  
22 is that there is an intended monocultural aspect as to  
23 what you regard as a plantation?

24                  A. It can even be monocultural or  
25 genetic manipulation.

1 Q. Either one?

2 A. Either one.

3 Q. For the end production of uniform  
4 production ad infinitum?

5 A. That is's correct.

6 Q. All right.

7 A. Let me rephrase that. Or the  
8 production of wood fiber ad infinitum which is also  
9 quantity production not necessarily quality.

10 Q. But it relates to both as you  
11 conceive it?

12 A. It relates to both, that's correct.

13 Q. All right. Could I ask you to go to  
14 page 21 of your witness statement, please.

15 At page 21, Mr. Maser, in the first full  
16 paragraph beginning with the word "Thus..."

17 Do you see that?

18 A. Yes.

19 Q. "Thus as we liquidate.."

20 As I understand it, you are expressing  
21 views upon what you perceive to be the risks of  
22 plantation failure?

23 A. The risk of plantation management to  
24 the exclusion of a resting stage, that is correct.

25 Q. All right. And, therefore, the risks

1 if plantation management efforts fail?

2 A. That is correct.

3 Q. That is what you are talking about in  
4 that paragraph; is that correct?

5 A. Yes.

6 Q. All right. And the views, as I  
7 understand it, expressed in that paragraph and  
8 generally the evidence that you have given the Board  
9 regarding your view of plantation management are dealt  
10 with at some length in your book The Redesigned Forest?

11 A. Yes.

12 Q. Could I ask you to go to page 8 of  
13 your witness statement, please?

14 A. Eight?

15 Q. Eight.

16 A. Okay.

17 Q. Do you have that? The second full  
18 paragraph begins with the words: "The timber  
19 industry..."

20 A. Yes.

21 Q. This is the sentence that we just  
22 looked at a few moments ago, it relates to  
23 interrogatory No. 18.

24 A. Mm-hmm.

25 Q. I would ask you to look at the second

1 sentence. The second sentence reads as follows:

2 "Perpetual expansion involves liquidating  
3 the native forest and increasingly  
4 intensifying plantation management on an  
5 ever expanding number of acres. The  
6 forest death knell is sounded by ever  
7 increasing push for more and more  
8 intensive plantation management based on  
9 linear industrial economic thinking."

10 That's your opinion?

11 A. Yes, Ma'am.

12 Q. All right. Would I be correct in  
13 assuming that in expressing those opinions, in  
14 particular with respect to this issue of intensive  
15 plantation management, your intention was not in any  
16 way directed to the Ontario situation?

17 Again, these were generalizations not  
18 particular to Ontario?

19 A. That's correct.

20 Q. And dealing with this issue and the  
21 concerns that you have expressed about intensive  
22 plantations management, recognizing the way you  
23 understand that, the way you defined that, these  
24 concerns, as I understand what you are saying here, are  
25 essentially that the continued practice of intensive



1       plantation management as you define it is tantamount to  
2       the future death of the forest?

3                   A.   Over time, that is correct.   If that  
4       is continued--

5                   Q.   Would it be fair to say --

6                   A.   --without changing.

7                   Q.   Would it be fair of me to suggest,  
8       Mr. Maser, and perhaps this is the fairest way that I  
9       know to put this, that the views that you have  
10      expressed on this issue do not enjoy consensus in the  
11      scientific community?

12                  A.   No, nor do they need to.

13                  Q.   Whether they need to or not we can  
14      come to in a moment, but the fact is that there are  
15      scientists who are experts in matters of forestry and  
16      ecology who do not agree with your propositions --

17                  A.   I would say there are scientists who  
18      do not agree.   Whether they or I are experts is open to  
19      discussion.   They do not agree.

20                  Q.   Do you accept and recognize that  
21      there are accredited scientists, that you would regard  
22      as accredited scientists who are knowledgeable about  
23      and trained in in matters of forestry and ecology who  
24      do not accept the propositions you have advanced with  
25      respect to your approach to intensive plantations

1 management?

2 A. That is true, but there are also some  
3 who agree. Nobody will every agree on everything.

4 Q. What I am suggesting to you without  
5 into getting into a numbers game, because I have no  
6 wish to do that, Mr. Maser, is that there are a large  
7 number of imminent scientists knowledgeable about these  
8 issues that not only do not accept the proposition that  
9 you have advanced but have challenged their  
10 reliability; is that fair?

11 A. I know of a few who have challenged  
12 them. I do not know of many. There may be many. If  
13 there are, I do not know of them.

14 Q. All right. Mr. Maser, I am going to  
15 show you a document.

16 A. I have it right here.

17 Q. You have got a copy of it?

18 A. Yes, Ma'am.

19 Q. It is called The Redesigned Forest.  
20 I understand it to be a review of your book.

21 A. One in about thirty.

22 Q. All right.

23 MS. CRONK: Madam Chair, I would ask that  
24 that be the next exhibit, please. (handed)

25 MADAM CHAIR: This will be Exhibit 1684.

1                   Could you describe that document, Ms.

2           Cronk?

3                   MS. CRONK:  Yes, Madam Chair.

4                   Q.  Mr. Maser, am I correct that this is  
5           a scientific review of your book, The Redesigned  
6           Forest, conducted by seven scientists whose names  
7           appear on the third and fourth to last pages of the  
8           document?

9                   A.  That is correct.

10                  Q.  And further, do I understand that it  
11           was published in the journal -- do I understand  
12           correctly that it was published in the Journal of  
13           Forestry in the December 1990 edition, Volume 88, No.  
14           12?

15                  A.  That is correct.

16                  MS. CRONK:  Madam Chair, it is, for the  
17           record, eight pages in length, and I'm sorry I missed  
18           the exhibit number.

19                  MADAM CHAIR:  1684.

20           ---EXHIBIT NO. 1684:  Eight-page scientific review of  
21                                   Mr. Maser's book, The Redesigned  
22                                   Forest, published in the Journal  
23                                   of Forestry in the December 1990  
24                                   edition, Volume 88, No. 12.

25                  MS. CRONK:  Q.  Mr. Maser, could I ask  
                  you to just take a moment, if you would, please, and to

1       number the pages so that we can move through this  
2       quickly, starting with the first page one and through  
3       to the end, which should be eight.

4                   Mr. Maser, could I ask you to turn first,  
5       if you would, please, to page 5. As I understand it,  
6       the names of the scientists who authored this review  
7       are set out beginning at the bottom of page 5 and  
8       carrying over onto the top of page 6; is that correct?

9                   A. Yes.

10                  Q. And am I correct that all -- there  
11       were seven scientists who conducted the review, all  
12       from the Pacific forest regions?

13                  A. Yes.

14                  Q. Including two from the College of  
15       Forestry of Oregon State University in Corvallis?

16                  A. I don't know if they are scientists  
17       or not. One was the department head and the other was  
18       a teacher in Department of Forest Management. I would  
19       not consider them scientists, they are teachers.

20                  Q. They are which?

21                  A. Teachers.

22                  Q. Teachers.

23                  A. Professors.

24                  Q. I see. They are both connected with  
25       the College of Forestry?



1 A. That is correct.

2 Q. At the Oregon State University in  
3 Corvallis?

4 A. That is correct.

5 Q. They are both professional foresters,  
6 or do you know?

7 A. I don't know if we have what you have  
8 by professional foresters.

9 Q. I mean they are trained foresters, or  
10 do you know that.

11 A. No. One is a soil scientist, one is  
12 a forester.

13 Q. And one is in fact head of the  
14 department did you say?

15 A. Was.

16 Q. Am I correct that all seven reviewers  
17 are members of the Society of American Foresters?

18 A. I have no idea.

19 Q. Could I ask you to look at page 1,  
20 please. The second full paragraph, including three  
21 sentences, which read as follows:

22 "We recognize..."

23 This is about seven lines from the bottom  
24 of that paragraph, Mr. Maser.

25 "We recognize that spiritual, aesthetic

1 and scientific values of old growth  
2 forests are important components of many  
3 forest landscapes and that there is  
4 always more to be learned about forest  
5 ecology and management. However, we also  
6 know many outstanding examples of  
7 intensive and successful forestry  
8 programs are found in the Douglas fir  
9 region and elsewhere. Because Maser's  
10 book questions such current management  
11 and the scientific basis for it we agreed  
12 to provide this review."

13 Now stopping there for a moment. As I  
14 understand it, what the reviewers were doing there were  
15 setting out the basis upon which they had agreed to  
16 provide a review of your book?

17 A. This review has an interesting  
18 history, so before we go further I will give you the  
19 history and the context of the review.

20 Q. Could I first have an answer to my  
21 answer, sir, and then if you would like to --

22 A. I assume. I was not in those  
23 people's minds. I do not know why they agreed to  
24 review this.

25 Q. I understand.

1                   A. They were asked to review it. I  
2       assume they have set out why they agreed to review it.

3                   Q. And that would be in the portion of  
4       the document to which I just referred you? That's in  
5       effect what they are saying there?

6                   A. Yes.

7                   Q. All right. Then dealing with the  
8       next paragraph General they indicate as follows:

9                   "The main theme of The Redesigned Forest  
10       is that we need a broad commitment to a  
11       sustainable forest and that sustainable  
12       limits are set by the forest not by  
13       people. Maser believes that young growth  
14       forests are not stainable under current  
15       manager practices and suggests that they  
16       must be healed with humility, love,  
17       understanding and patience."

18                   Now, stopping there. In essence those  
19       are the views that you have expressed to the Board?

20                   A. That's correct.

21                   Q. Then the reviewers go on to say:

22                   "He seems to regard reliance on natural  
23       processes, especially those operative and  
24       old growth stands, as the most desired,  
25       if not sole path, to such healing and

1 sustainability. He is also skeptical of  
2 intensive management practices and seems  
3 to view them primary as agents of  
4 additional stress rather than as  
5 relievers of natural stress or as means  
6 of channelling natural processes to  
7 enhance a variety of forest uses and  
8 values including sustainability."

9 Now stopping there again. Is that a fair  
10 reflection by the reviewers of your view of the matter?  
11 Have they captured its essence?

12 A. If you take a look at the way we are  
13 doing it, the answer is yes.

14 Q. Then continuing on in the same  
15 paragraph:

16 "Virtually all rationale people would  
17 agree that sustainability of forests is  
18 essential to the well-being of human  
19 kind. Moreover, the debate over  
20 naturalistic ideaology is commonly  
21 replayed in situations similar to the  
22 present controversy with people favouring  
23 positions along the entire spectrum from  
24 unbridled natural development and  
25 succession to very intensive



1 manipulation. Unfortunately, the  
2 philosophical discussion in this book is  
3 based upon some serious misconceptions  
4 and it contains a great deal of  
5 misinformation about forest management  
6 and its scientific basis. Such problems  
7 can only add to the current confusion  
8 surrounding the forest management  
9 controversy. Thus, we will comment on  
10 selected examples of these  
11 misconceptions."

12 I don't expect, Mr. Maser, that you would  
13 agree with those propositions, but is it accurate to  
14 say that these reviewers at least are suggesting that  
15 your book contains or is based upon, to use their  
16 language, some serious misconceptions and  
17 misinformation about forest management and its  
18 scientific basis? That is the view they are  
19 expressing?

20 A. In their view that is correct.

21 Q. And that is the view they have  
22 expressed?

23 A. That's correct.

24 Q. All right. Dealing with this issue  
25 of forest decline and intensive plantation management

1 that we were discussing when I asked to look at this  
2 document, at page 2 under the heading Examples of  
3 Misconceptions, am I correct that what begins at that  
4 part of the document and follows for the next several  
5 pages is a discussion of what these reviewers suggest  
6 are misconceptions on your part as reflected in your  
7 book, the first relating to forest decline?

8 That's what the subject matter is of page  
9 2 and following?

10 A. Of what they perceive the  
11 misconception to be.

12 Q. Yes.

13 A. That's what they state.

14 Q. All right. Dealing first with forest  
15 decline the -- well, perhaps we better deal with the  
16 full context. They say first with respect to forest  
17 decline:

18 "To support his contention that young  
19 growth forests as currently managed are  
20 not sustainable, Maser cites the growing  
21 evidence of decline in productivity over  
22 large areas of intensively managed  
23 forests throughout the world. The author  
24 questions the simplification he  
25 associates with European plantation

1 management and resurrects the example of  
2 the infamous Saxony spruce sickness  
3 reported in the 19th Century when Norway  
4 spruce was planted on central European  
5 sites cleared of low quality natural  
6 stands of mixed hardwoods. Although  
7 plantations grew well in the first  
8 rotation, growth declines were sometimes  
9 seen in the second."

10 Stopping there for a moment. In essence  
11 am I correct that that reflects the views you have  
12 expressed to this Board?

13 A. No. What I did was cite Plochmann,  
14 who was the German who had the reserve at hand, and the  
15 second publication, if you were to read that, the one  
16 that he did in 1989, they corroborate that and the  
17 Germans are going away from plantation management  
18 almost totally back to what they call forest management  
19 because their forests have not be sustainable.

20 Q. Sorry, Mr. Maser, you may have  
21 misunderstood my question or I may have put it badly.

22 A. Okay.

23 Q. Have you not said to this Board that  
24 there is growing evidence of decline in productivity  
25 over large areas of intensively managed forests in the

1 world?

2 A. No, I did not. I said they are not.

3 Q. I'm talking about the Germans now.

4 A. That's what I am saying. I only said  
5 that about the German forests. That's the only place  
6 there was any data.

7 What I said was, they have not been  
8 sustainable if I remember correctly. European forests  
9 they measure decline of productivity from 20 to 30 per  
10 cent.

11 Q. Were you not suggesting that in  
12 Europeans forests generally there was this decline?

13 A. I was talking about German forests.

14 Q. I see. All right. With respect then  
15 only to Germany, that is in essence what you said about  
16 their forests?

17 A. Yes.

18 Q. All right. Have you not also  
19 suggested to the Board that there were problems  
20 evidenced and recorded in their plantations after the  
21 first rotation? Growth declines?

22 Were you not suggesting that there were  
23 problems --

24 A. After the first rotation, yes, Ma'am.

25 Q. That's what you were saying?



1 A. Not during the first rotation.

2 Q. After the first rotation?

3 A. Correct.

4 Q. That's the nature of the evidence you  
5 have given the Board.

6 A. Correct?

7 Q. All right. Then still dealing with  
8 the same paragraph, Mr. Maser, these reviewers suggest  
9 that you indicate that the cause for these declines in  
10 growth and for the declines in productivity were the  
11 high demand and withdrawal of ecological resources  
12 brought by intensive plantation management.

13 Stopping there for a moment. That's the  
14 same assertion that you made to the Board?

15 A. Yes. They misunderstood. They are  
16 in error in that.

17 What I suggested was, and if you read the  
18 book you will see that, that in looking at the other  
19 article you gave me by Dr. Schutt and Cowling that they  
20 omitted to look at the stresses caused by intensive  
21 management. They looked at all of the air pollution  
22 inputs outside coming in, but did not take into account  
23 that the stresses of management over the years may have  
24 predisposed those forests to a greater intensification  
25 of the dying syndrome based on outside influences.

1 Q. I see. So you are saying that these  
2 reviewers misstate what your thesis was and all you  
3 were really saying was that intensive plantation  
4 management may have been a contributing factor to the  
5 decline along with others?

6 A. That iss correct. That it was  
7 neglected to be looked at. That was all I said.

8 Q. When you draw attention to the fact  
9 that it was neglected to be looked at, the reason you  
10 do that, as I understand what you are saying, is  
11 because it is a factor in your view that should have  
12 been taken into account because it could, along with  
13 other factors, have contributed to the decline?

14 A. I think it would have been wise to  
15 look at everything rather than picking one thing or the  
16 other. The same in this country.

17 Q. That may also be also true, but my  
18 question to you, Mr. Maser, just so I understand where  
19 our discussion is, I was suggesting to you -- I want to  
20 make sure I understand it.

21 What you are saying is that it should  
22 have been looked at, everything should have been looked  
23 at?

24 A. Yes.

25 Q. It should have been looked at,

1       however, because it was one factor, along with a host  
2       of other factors, that may have resulted in the  
3       decline?

4                   A. Yes, and my point with that is, when  
5       you just look at either just the soil or just the  
6       outside you do not get the whole picture, and I see no  
7       way we can come to a rationale agreement on what the  
8       causes may be.

9                   Q. Well, I thank you for that, sir,  
10      because I didn't understand that from your evidence.  
11      That clarifies it for me.

12                   So when you say at page 8 of your witness  
13      statement that:

14                   "Perpetual expansion involving  
15                   increasingly intensifying plantation  
16                   management is tantatmount to the forest  
17                   death knell..." you did not mean to  
18      suggest that intensive plantation management of and in  
19      itself would destroy the forest?

20                   A. No.

21                   Q. And that's not your evidence to the  
22      Board?

23                   A. No.

24                   Q. You are just sounding a concern that  
25      we should be cautious in that form of management to

1 consider its consequences along with consequences of a  
2 whole host of other factors?

3 A. That is correct. If you take  
4 intensive plantation management, you cannot look at it  
5 without looking at the economic theory behind it  
6 because that is as much a part of the cause as what is  
7 done on ground. It is never going to be one thing and  
8 very simple.

9 Q. All right. In the balance of this  
10 paragraph at page 2, the paragraph that we were looking  
11 at, these reviewers misunderstanding, as I did, the  
12 import of your assertions were suggesting that, in  
13 fact, the cause for the decline occasioned by the  
14 spruce sickness in Europe reported in the literature  
15 was something entirely different than intensive  
16 plantation management.

17 In fact, what they go on to detail is  
18 that -- and I don't know wish to misdescribe the  
19 technical aspects of this, but essentially that spruce  
20 declined on sites with poor internal drainage and not  
21 on sites of a different kind, and that it was a  
22 drainage issue when the matter was actually looked  
23 into. In effect, that the species was planted on the  
24 wrong kind of sites?

25 A. That is a product of intensive



1 management. That is what I am talking about. This is  
2 all part of the same thing.

3 Q. I see.

4 A. See, we can make mistakes on how we  
5 plant trees and where we plant them, as well as we can  
6 make mistakes in interpreting what the scientific  
7 evidence says. That is the point I am getting at.

8 It was the idea that they were planted in  
9 in an intensive way for a particular economic purpose.  
10 It had bad results. The intent was not bad, the  
11 results ended up being bad through lack of  
12 understanding. That's all I'm saying.

13 Q. Well, let's look at the next  
14 paragraph then. The authors quote you as saying:

15 "The forests of central Europe are  
16 dying."

17 Now, they are quoting your book.

18 A. That's correct.

19 Q. As he have seen, that is also in your  
20 witness statement here and you made that statement to  
21 the Board; correct?

22 A. That is correct.

23 Q. Then they go on to say that you speak  
24 of this forest death by the German name or forest  
25 decline syndrome of west Germany as a logical

1 consequence of the cumulative effects of intensive  
2 plantation management. That's what you have also said  
3 to this Board?

4 A. That is correct.

5 Q. Then they go on to say:

6 "Most objective forest scientists,  
7 however, say..."

8 Could you pronounce that for me?

9 A. Waldsterben.

10 Q. It has been a long time since I had  
11 to use German.

12 "...that forest decline syndrome is  
13 caused by several factors including  
14 pathogens, air pollution and soil  
15 chemistry. Moverover, most planted  
16 forests of Europe that have been under  
17 management for centuries are growing  
18 vigorously except for those downwind from  
19 air pollution centres."

20 Now stopping there for a moment. I take  
21 it from you are saying to me this morning you would  
22 agree with the suggestion that the decline observed, to  
23 the extent that it has been observed in central  
24 European forests, is in fact caused by several factors  
25 including such items as pathogens, air pollution and

1 soil chemistry.

2 You don't have any quarrel with that?

3 A. No.

4 Q. You do not agree, however, as I  
5 understand the evidence you have given to the Board,  
6 that most planted forests of Europe are in fact growing  
7 vigorously today except for those downwind from air  
8 pollution centres? There you part company with these  
9 foresters?

10 A. That is true.

11 Q. In your view they are not doing well  
12 and you are saying we should be worried about them?

13 A. From the evidence that I -- the  
14 papers I have read from Europe say they are not doing  
15 well. My concern with it is they have not looked at  
16 the potential for having had management stress add to  
17 the problems over time.

18 Q. When you say they haven't look at it,  
19 would it be fair to say that in your view they haven't  
20 looked at it adequately because, of course, it is  
21 looked at in the literature?

22 A. No, Ma'am, it is not.

23 Q. Isn't Plochmann himself an example of  
24 where it was looked at?

25 A. Plochmann is the first one and there

1 is one in Yugoslavia.

2 Q. So it has been looked at, in your  
3 view not adequately?

4 A. Okay. Yes, and he had been  
5 resoundingly dismissed also.

6 Q. What I am suggesting to you is that  
7 there is in the scientific community a real division of  
8 opinion as to whether in fact --

9 A. That's correct.

10 Q. Let me finish the question, Mr.  
11 Maser. I appreciate your effort to cooperate, but what  
12 I am suggesting to you is that there is a real division  
13 in the scientific community as to whether in fact the  
14 very forests that you described as dying are in fact  
15 dying or whether they are in fact performing very well  
16 and satisfactorily? There is no consensus on that  
17 issue at all I suggest?

18 A. That is correct.

19 Q. And then would it be fair to say as  
20 well -- you referred a few moments to another article  
21 that I provided to you, the Schutt and Cowling -- am I  
22 pronouncing that correctly.

23 A. Schutt.

24 Q. The Schutt and Cowling article.

25 Would it be fair to say before we go to these documents



1       that there are a number of accredited scientist who  
2       have dealt in published research papers with the issue  
3       of the cause for declines in productivity where  
4       observed in west Germany and they do, as the author in  
5       this review, Exhibit 1684, suggest, they do outline a  
6       whole host of factors that contribute to that?

7               A. That they think do. I visited with  
8       Peter Schutt in 1985 and you will see this article was  
9       published in '85. So this was in press before I  
10      visited with him.

11             I visited him at the university of Munich  
12      and we discussed this and he in fact agreed that the  
13      management -- possible management stresses had not been  
14      taken into account.

15             Q. I am not suggesting that there is any  
16      debate about that.

17             A. All I am saying is, they have put  
18      forth a number of hypotheses, none of which dealt with  
19      possible management stresses. When I visited with him  
20      as the author of this he agreed that had not been  
21      looked at. That's all I'm saying.

22             Q. All right. Let's take a look at the  
23      article. First of all, am I correct that it is  
24      entitled Waldsterben -- am I pronouncing that  
25      correctly?

1 A. Waldsterben.

2 Q. Thank you very much. A German

3 Decline --

4 A. A general decline.

5 Q. A General Decline of Forests in  
6 Central Europe, Symptoms, Developments and Possible  
7 Causes?

8 A. That's correct.

9 Q. It is by Peter Schutt, S-c-h-u-t-t,  
10 and Cowling, C-o-w-l-i-n-g?

11 A. That is correct.

12 Q. Thank you.

13 MS. CRONK: If that could be the next  
14 exhibit, Madam Chair.

15 MADAM CHAIR: Exhibit 1685.

16 ---EXHIBIT NO. 1685: Article entitled A General  
17 Decline of Forests in Central  
18 Europe, Symptoms, Developments  
and Possible Causes by Peter  
Schutt and Ellis Cowling.

19 MS. CRONK: What was the exhibit number,  
20 Madam Chair?

21 MADAM CHAIR: 1685.

22 MS. CRONK: Thank you.

23 THE WITNESS: 168...

24 MADAM CHAIR: Five.

25 MS. CRONK: Q. As you point out, Mr.

1 Maser, this article was published in 1985 in a  
2 publication called Plant Disease?

3 A. That is correct.

4 Q. All right. And am I correct --  
5 perhaps there is a more expeditious way of doing this.

6 Am I correct that these authors in their  
7 discussion in this paper of the reasons and the  
8 symptoms, development and possible causes of the  
9 observed declines in productivity in west German  
10 forests suggest six general hypotheses as explanations  
11 and then proceed to discuss the pros and cons of each  
12 as being a contributor or causal factor.

13 A. That is correct.

14 Q. And those six general hypotheses are  
15 set out in the middle column on page 1. There is two  
16 bulleted items you will see in that middle column. The  
17 first begins:

18 "The stress factor inducing the  
19 Waldsterben syndrome are not known..."

20 Do you see that?

21 A. Where are you?

22 Q. Page 1 of the exhibit, middle column.  
23 First full paragraph bullet beginning:

24 "The stress factors..."

25 Do you see that?

1 A. Correct.

2 Q. The author indicate that the stress  
3 factors inducing the syndrome are not known.

4 They indicate then in the next bulleted  
5 item that:

6 "Six general hypotheses have been  
7 advanced to explain one portion or  
8 another of the syndrome:  
9 acidification/aluminum toxicity, ozone  
10 effects, magnesium deficiency, general  
11 disturbance of physiological function,  
12 excess nutrient (especially nitrogen)  
13 deposition from the atmosphere, and  
14 air transport of growth-altering organic  
15 substances."

16 Correct?

17 A. That's correct.

18 Q. They go on in the article, do they  
19 not, to review each?

20 A. That's correct. There are, however,  
21 in two of the hypotheses some things they have left out  
22 which they did not take into account.

23 Q. And the one in which you have a  
24 particular complaint is you feel they should have  
25 specifically identified as a separate potential causal

1 item the fact of intensive plantation management? They  
2 should have considered it?

3 A. No, Ma'am, that's not what I am  
4 talking about.

5 Acidification can be done by removing  
6 those trees which ameliorate the site because their  
7 basic acidification is augmented by taking all the wood  
8 out of the forest and just leaving a layer of spruce  
9 needles to decompose which they have for over a century  
10 because of the raking of the forests which are acidic  
11 and add to the acidity of the soil. That's one thing  
12 that was not taken into account.

13 Q. I see.

14 A. Intensive management can also begin  
15 to acidify the site. The other one is, and down here  
16 they are correct, excessive nitrogen, nutrients  
17 especially nitrogen.

18 If I remember correctly, I indicated that  
19 the mycorrhizal fungi of which their system is now  
20 depopulated grows in a nitrogen deficient soil and most  
21 of the soils in the temperate coniferous forest tend to  
22 be nitrogen deficient. The fungus has evolved with  
23 nitrogen fixation inside it. When nitrogen is in  
24 excess, so far as we understand today, its function  
25 shuts down; it ceases to produce and translocate



1 nitrogen. Therefore, the mycorrhizae is the uptake  
2 mechanism of the nutrients.

3 Not just myself, but the ecologist I  
4 worked with also do not think it was adequately looked  
5 at because simply the excess of nitrogen which shuts  
6 down the function of the mycorrhizae may have something  
7 to do with the trees not being able to take it up and,  
8 therefore, going through a stress syndrome of  
9 starvation. These things is what I was saying have not  
10 been take into account.

11 Q. All right. So what you are saying is  
12 they are a number of other things that they should have  
13 looked at as well, or could have looked as well?

14 A. They didn't about and need to be  
15 looked at.

16 Q. All right. As I understand it then,  
17 what you are now identifying is, in the sense of the  
18 last two items that you've discussed, some other  
19 potential causes for the decline?

20 A. That is correct. See, in this  
21 case --

22 Q. Sorry. None of which have been  
23 proved?

24 A. If it were mycorrhizal, the simple  
25 fact that excess of nitrogen is put into the soil,

1       discounting everything else, if it shuts down the  
2       mycorrhizae's ability to function that has an impact on  
3       the trees on a whole. These have not been looked at  
4       that I know of.

5                       What they were doing when I was in  
6       Germany in 1985, they were desperately looking for acid  
7       resistant trees and mycorrhizal fungus which is  
8       treating a symptom and not asking questions about the  
9       cause. They are now starting to ask questions about  
10      the cause, as Dr. Plochmann said in his last article  
11      published in 1989 by the School of Forestry at Oregon  
12      State University.

13                    Q. Well --

14                    A. So we are getting there is what I'm  
15      saying and it takes time.

16                    Q. Let's just deal with a couple of  
17      aspects of that. I am not in any way advancing any  
18      theory as to what the cause of this decline is.

19                    A. I understand that.

20                    Q. What I am suggesting to you, Mr.  
21      Maser, is that there are in this particular article by  
22      these particular scientists six hypotheses advanced,  
23      none of which have been proven one way or the other as  
24      being the causal factors in the decline?

25                    A. That is correct.

1 Q. You have identified another two this  
2 morning--

3 A. That is correct.

4 Q. --that you think they haven't looked  
5 at and you think they should look at?

6 A. That is correct.

7 Q. There is another which you have  
8 identified in the last two days in your evidence and  
9 that is intensive plantation management --

10 A. Just another piece.

11 Q. Yes.

12 A. That is correct.

13 Q. But none of them are proven to be the  
14 causal factor in the decline that have been observed in  
15 the forest?

16 A. No, and I would submit that I don't  
17 think anyone will prove to be the cause.

18 Q. And some of them may prove not to be  
19 in any way contributing factors on further  
20 investigation? That is also possible?

21 A. That is possible, yes.

22 Q. And that could be true of any of  
23 them; correct?

24 A. No, it can be true of some of them.  
25 Biological ones like the mycorrhizae, if there is

1 impact on mycorrhizae for any reason that will -- one  
2 will not be disproven.

3 Q. Sir, you don't know that until the  
4 research is done; do you?

5 A. It functions that way in the United  
6 States based on research. I have no reason to believe  
7 it won't function that way in Europe, but if you like  
8 it as an assumption that --

9 Q. I would like it as the fact, the  
10 truth and you can tell me what that is.

11 You can't say that? You can't say in  
12 advance of the scientist what factors can be eliminated  
13 as the causal agent until they have been fully  
14 investigated? You can't do that. Are you telling me  
15 you can?

16 A. What I am saying is that the basic  
17 functional process works here and we have the same  
18 basic processes over there. If it works there it will  
19 work here. That has not been proven, so in that sense  
20 I would say no. I cannot say that.

21 It works here. If it works here, I know  
22 it works there. It has not been proven there. Let's  
23 leave it at that.

24 Q. You are giving us your view as to the  
25 likelihood of which factor will be eliminated?

1                   A. Basically, yes, I guess you could say  
2     that.

3                   Q. All right. Because you can't say in  
4     advance as a scientist that any particular causal  
5     factor, one or any combination of them, will be  
6     eliminated from a determination of cause and effect  
7     until the investigations are done?

8                   You don't start out as a scientist doing  
9     it that way; do you?

10                  A. No.

11                  Q. All right. And isn't it also true  
12     that the declines that have been measured in the  
13     central European forests, German forests, that is what  
14     you are talking about, are not restricted to plantation  
15     and, in fact, aren't more severe on plantations than  
16     elsewhere?

17                  A. No, that is not true. Plochmann  
18     stated when they measured the decline he was talking  
19     only about plantations, not about the high elevation  
20     non-plantation forest.

21                  The plantations of the forest in the  
22     lowland are all plantations including the Waldsterben  
23     which is one that is often held up. That is a  
24     plantation. He was not measuring the decline of yield  
25     in anything except their plantations. I do not know



1       what is going on in terms of yield in their forests.  
2       The only data they had were on the plantations.

3                       Q.   Can you agree with me on this, Mr.  
4       Maser, that differences in management practices have  
5       been looked at in terms of whether there is a greater  
6       influence of management practices on plantations  
7       versus natural areas as being a contributing factor  
8       to the declines and it has been found in the...

9                       Do you agree with that?

10                      A.   No, I don't.

11                      Q.   all right.  Let's take a look at page  
12       550 of this article.

13                      A.   550?

14                      Q.   Yes.  I would direct your attention  
15       to the middle column entitled Chronology and General  
16       Aspects of Waldsterben.  Do you see that?  That's the  
17       title.

18                      A.   Yes, Ma'am.

19                      Q.   And then in the right-hand column,  
20       the first full paragraph begins:

21                      "The following features are of special  
22       significance..."  and they are talking  
23       about general aspects of the syndrome.

24                      It is called a syndrome; isn't it?

25                      A.   That's right.

1 Q. All right. They are talking about  
2 general aspects or special features of the syndrome and  
3 the first bullet indicates that visible symptoms of the  
4 syndrome started at about the same time in many  
5 different parts of Europe.

6 Do you see that?

7 A. That's correct.

8 Q. Is that your understanding.

9 A. That is correct.

10 Q. They indicate in the second bullet  
11 that within four years symptoms were found over large  
12 parts of the continent.

13 Is that your understanding?

14 A. Yes, Ma'am.

15 Q. Then jumping down, I haven't numbered  
16 these bullets, perhaps I will do that so you can find  
17 it.

18 A. What's the first word?

19 Q. If you look at the eighth bullet  
20 beginning with the words:

21 Waldsterben occurs..."

22 A. "Waldsterben occurs..." Okay.

23 Q. They suggest that the syndrome occurs  
24 with similar intensity on rich or poor, acid or basic,  
25 wet or dry soils independent of their geologic origin.

1 Do you see that?

2 A. That's is correct.

3 Q. That is correct? You agree with  
4 that?

5 A. I agree with that.

6 Q. And then coming down another two  
7 bullets, they indicate:

8 "Differences in forest management  
9 practices or in the structure of the  
10 forest, single species versus mixed  
11 stands, planted versus natural stands do  
12 not have important influences on the  
13 amount of damage."

14 Do you see that?

15 A. Yes.

16 Q. Do you agree with that?

17 A. Yes, I do. The thing one must keep  
18 in mind is that the European forests have been managed  
19 intensively for a very, very long time. The plantation  
20 mode is a specific mode in a specific place, but their  
21 forests have been stressed for a very long time through  
22 management.

23 So while I single out here, to me what I  
24 look at in this country as having the greatest stress  
25 plantation management, we have not had the impact on

1       our forests that Europeans have had over the centuries.

2               So what I am suggesting is --  
3       respectfully what I am suggesting is that their whole  
4       forest system has been stressed through repeated use  
5       over the centuries and there may prove to be many  
6       differences in this and all I am suggesting is they  
7       have not looked specifically at what management has  
8       done to their forests in what areas and with what  
9       intensity.

10              Q.   And what I am suggesting to you here,  
11       and we will come to this issue of the stresses in a  
12       moment.

13              A.   Okay.

14              Q.   What I am suggesting to you here is  
15       that scientists who have looked at this issue and  
16       studied it in detail suggest that differences in forest  
17       management practices as between planted and natural  
18       stands do not appear to influence the amount of damage  
19       and the clear implication is that they are both  
20       affected?

21              A.   They are both affected, from high  
22       elevation to low elevation.

23              Q.   It doesn't appear to be a situation  
24       particularly to plantations, to planted stands?

25              A.   No.

1 Q. That's not the case at all?

2 A. And I did not mean to suggest it was  
3 only in plantations.

4 Q. Could I ask you to go to page 556,  
5 please.

6 A. Yes.

7 Q. This is, as I understand it, the  
8 summary discussion of possible causes of the syndrome  
9 and the decline?

10 A. Yes.

11 Q. And in the middle column they set out  
12 areas of general agreement. Do you see that?

13 A. Yes.

14 Q. Am I correct in interpreting this as  
15 being issues on which there is general consensus been  
16 reached in the scientific community?

17 A. As close as you can get to consensus  
18 in the scientific community.

19 Q. Item No. 4 of those matters  
20 identified as being those upon which general consensus  
21 in the scientific community has been reached is the  
22 following:

23 Some experimental findings, various field  
24 observations and survey results and  
25 numerous debates about alternative



1 explanations have led to a general  
2 agreement that atmospheric deposition of  
3 the air pollutants or pollutant related  
4 toxic nutrient acidifying or growth-  
5 altering substances are among the primary  
6 causal factors for the syndrome."

7 Is that correct?

8 A. That is correct.

9 Q. There is nothing there about  
10 management practices or about intensive plantation  
11 management which is the source, of course, of your  
12 complaint, they didn't take that into account, but  
13 there is no suggestion that there has been general  
14 consensus reached that those are primary causal  
15 factors, if not factors at all?

16 A. Two things. One, I am not making a  
17 complaint. What I am suggesting is--

18 Q. An issue.

19 A. --something was overlooked.

20 Q. Sorry.

21 A. The second thing is they say among  
22 the primary causes. They did not say the primary  
23 causes. I am not saying anything is the primary cause.

24 Mr. Schutt himself is in favour of a  
25 hypothesis that is called a general stress hypothesis

1       which is very broad.

2                   Q. I am not suggesting for a moment it  
3       shouldn't be looked, Mr. Maser. I am just saying it is  
4       important not to overstate the implications of it,  
5       that's all. You would agree with that?

6                   A. What I am saying to get across is, I  
7       am not overstating it. What I am saying is something  
8       is missing. That's all.

9                   Q. You said a few moments ago that the  
10      forests of Germany have been subjected to centuries of  
11      stress of the kind not experienced by the north  
12      American counterparts?

13                  A. That is true and there's a whole book  
14      on that.

15                  Q. Well, in fact, there is a great deal  
16      of literature about it; isn't there?

17                  A. That is correct.

18                  Q. As I understood what you said, you  
19      were talking particularly about management stresses  
20      when you made that statement?

21                  A. There are also the stresses of war  
22      and a lot of other things, but I'm talking mainly about  
23      manipulation of forests over the centuries, that's  
24      correct.

25                  Q. That's the point I wanted to come to

1 and I don't propose we review all of that.

2 What I am suggesting to you is that what  
3 has contributed to the historical stress load, if I can  
4 put it that way, of the German forests is far, far more  
5 than the management practices per se and those other  
6 factors dating back not just decades, but centuries are  
7 also well documented in the literature and they are  
8 things like farming of timber for agriculture purposes  
9 and overgrazing and consistent decades of litter  
10 raking, removing all understory.

11 All of those things are factors  
12 documented in the literature; are they not?

13 A. That is true.

14 Q. Things like allowing virtually  
15 unfettered access for removal of firewood below certain  
16 size of dimensions. So, again, it was a depletion over  
17 decades of understorey elements. That has occurred  
18 there?

19 A. That's correct.

20 Q. None that had anything to do with the  
21 management practices?

22 A. That is a management practice, Ma'am.

23 Q. I see. So when you talk about  
24 management practices in that context, you are not  
25 talking about the actual timber management activities

1 of foresters?

2 A. No. Grazing is a management  
3 practices, slash removal is a management practice,  
4 picking up wood for firewood is a management practice.

5 Those things which are condoned to be  
6 part of the impact on the forest for social values are  
7 all part of the management practice. It may become  
8 inculturated, it may be simply designed and planned,  
9 but they are all part of the management practice.

10 Q. Depletion of central European forests  
11 for the purposes of war efforts is also part of the  
12 management practice in that enlarged view?

13 A. They weren't managing forests in  
14 those days that way. No, I would exclude that.

15 Q. All right. What I am suggesting to  
16 you is that there is -- we are not talking one or two  
17 wars, and I don't want to have a debate about history  
18 with you, Mr. Maser.

19 What I am saying to you is in the  
20 scientific literature as opposed to the historical  
21 literature there is a documented review and analysis of  
22 the effect of repeated forestry depletions caused by  
23 war effort and war reparation and not one, the whole  
24 history of European war effort; correct?

25 A. Sorry, I did not get your connection

1       there.  Would you mind repeating that.

2                   Q.  What I am suggest to you is that  
3       there are many things that have contributed to this  
4       overstressing of German forests, and you agreed with  
5       that?

6                   A.  Right.

7                   Q.  And I said to you there were a lot of  
8       factors that contributed to that overstressed situation  
9       that had nothing to do with management practices and  
10      your reply was:  But, Ms. Cronk, all these things are  
11      management practices.

12                  A.  That's correct.

13                  Q.  What I am saying to you is, accepting  
14      what you said, because you are entitled to characterize  
15      it the way you wish, we cannot go so far as to say, I  
16      would suggest, that repeated forestry depletions for  
17      war effort and war reparations are management  
18      practices.  Would you agree?

19                  A.  No.  However, they took place long  
20      before forest management started taking place.  They  
21      began to set the stage.

22                  Q.  It is not all that long ago; is it?  
23      One of them was in '45.

24                  A.  Yes.  That was not -- had nothing do  
25      to with what I am talking about.



1                   Q. Well, isn't it true, Mr. Maser, that  
2                   there were, in terms of stresses on central European  
3                   forests, the effect of the first and the second world  
4                   war both during the currency of the wars and the  
5                   reparations required of those countries to the allies  
6                   after the wars affected further additional stresses to  
7                   those forests?

8                   A. Not in the same sense because in many  
9                   ways they copied the disturbance regimes. Just the  
10                  same as St. Helen's and it comes back.

11                 Q. However --

12                 A. What I am suggesting is management  
13                 stresses that took place in the 16-, 17-, 1800's in  
14                 Europe, were things that took things out of the forest  
15                 and that was done by design.

16                 My only concern, Ma'am, is that they set  
17                 a model that we -- and I am speaking of us in general,  
18                 but I will speak specifically of us in the United  
19                 States that we are following, and my concern is we need  
20                 not make the same mistakes.

21                 We have in some sense a different forest.  
22                 It was one that had not been raped and pillaged by war,  
23                 it is one that is healthy. They had to "repair" theirs  
24                 and yet we are still teaching, even at Oregon State,  
25                 the same basic plantation model forestry in many areas

1 and that is changing gradually, but my concern is, our  
2 basic premise of what we call forestry - and I will  
3 speak for the United States - is the same that they had  
4 and when Dr. Plochmann came and spoke he admonished  
5 Oregon State specifically, which is where he was  
6 speaking, to change their view because he said our  
7 model was an historical experiment and we get the  
8 results we anticipated.

9 My concern is, we need to broaden our  
10 view and make some different intelligent innovative  
11 mistakes. That's all I am concerned about.

12 Q. I understand and I doubt very much  
13 that you would get an argument from many people  
14 conceptually on those issues, Mr. Maser, but the  
15 propositions that I am putting to you are these, and  
16 you can indicate whether you agree or disagree.

17 A. Okay.

18 Q. First, there are significant material  
19 differences, and I think you just said this, between  
20 the history of and the current state of central  
21 European forests and those of this continent?

22 A. That is correct.

23 Q. In particular there are material  
24 differences in ecological terms--

25 A. That is correct.

1 Q. --and forestry terms between the  
2 forests of northern Ontario and those in Germany?

3 A. That is correct.

4 Q. And when you showed the Board photos,  
5 as you did several times in your slides, of forests in  
6 Germany, forests in central Europe and talked about the  
7 absence of understory and the condition of those  
8 forests, would it be fair to say that you did not  
9 intend to suggest that parallels should be drawn  
10 between the conditions of those forests and the  
11 conditions of our own here?

12 A. You are talking about Ontario  
13 specifically?

14 Q. Yes.

15 A. I would agree. If you are talking  
16 about Oregon I would disagree, there are a lot of  
17 parallels.

18 Q. I am talking about Ontario.

19 A. Ontario, no, I have not been there.

20 Q. All right. And further what you are  
21 really saying is that you perceived based on your  
22 understanding of the history and the current conditions  
23 in Germany and central European countries that mistakes  
24 have been made and in your view the plantation model  
25 has not worked and we should learn from that?

1                   A. That is correct.

2                   Q. I took you to the portion of the  
3       scientific review of your own book by the scientists  
4       from the Pacific northwest whose names appear on that  
5       document and they expressed the view that, in fact, the  
6       plantations in central Europe are growing very  
7       vigorously except for those downwind from air pollution  
8       centres, and I think you have agreed with me that there  
9       is a difference of opinion as to whether the plantation  
10      model per se in central Europe is the cause for the  
11      kinds of concern you have expressed. There is no  
12      agreement on that issue?

13                  A. With the Americans there is a  
14      difference of opinion. There is beginning to be far  
15      less difference with the Germans.

16                  What I would also suggest is, I  
17      understand what you are saying and I would basically  
18      agree, but I would like you to have a little context  
19      about this.

20                  This is an interesting review and I have  
21      no quarrel with it at all, but the key people from  
22      Oregon State, Dr. Papiner and Dr. Boyle -- when I got  
23      back from Europe I had some new ideas having spent a  
24      month with European foresters from France, Germany and  
25      Switzerland and I wanted to test the ideas at Oregon

1 State with these gentlemen in a seminar series where I  
2 would put out the idea and I would get a scientific  
3 critique. They wouldn't begin to even think about it.  
4 They wouldn't even give the ideas a hearing.

5 So I finally wrote the book and it has  
6 had about 30 reviews by professional foresters in  
7 Canada also. This is the only one that has had serious  
8 disagreement, and I have no problem with that at all.  
9 If they didn't disagree that would worry me because I  
10 don't know if I am right. That isn't the point.  
11 I didn't right the book for agreement. I wrote it to  
12 make people think to begin with.

13 What was interesting to me was that the  
14 Journal of Forestry commissioned three reviews of this  
15 book, as the editor told me, "to give it a fair  
16 hearing." One was written by a Canadian and the  
17 Canadian compared the book with Larry Harris' book on  
18 forest fragmentation and his comment was that the  
19 books -- both authors approached these subjects from a  
20 very different point of view and arrived at the same  
21 conclusion.

22 Larry's book is considered more  
23 scientific, but the Forest Service and the Bureau of  
24 Land Management who paid for the study would not  
25 publish that book because it was politically too hot.



1 I helped design the study, I wrote part of it, I got  
2 the money for the Fragmented Forest. So he asked me  
3 what to do with it and I said: Go commercial because  
4 in our country there is no copyright; it cannot be  
5 restricted if it is paid for with government funds.

6 When this review was coming out I was  
7 asked by the editor if I wanted to respond and I said:  
8 No, because these gentlemen are entitled to their point  
9 of view. I see in this type of review -- this to me is  
10 the health of the scientific community. I doubt you  
11 will ever find agreement, but all I am pointing out is,  
12 Ma'am, this is only one of about 30 reviews. It  
13 happens to be the one that is the most critical.

14 Q. Mr. Maser, please understand. My  
15 purpose of showing you this review and asking you these  
16 questions is not in any way to challenge your book or  
17 to suggest that your work is not valuable.

18 A. I didn't take it that way.

19 Q. Please understand what I am saying.

20 A. What I am saying is I am not taking  
21 it that way.

22 Q. The point I put to you is this, and  
23 you may take it that I am aware of other reviews with  
24 respect to your work, what I am suggesting to you is  
25 that from a strict scientific analysis point of view in

1 not just one, but a number of reviews by scientists in  
2 the field it has been suggested that your scientific  
3 underpinnings for your premises, the very kinds of  
4 premises that you have advanced to the Board, are in  
5 doubt.

6 Now, that's been true in more than one  
7 review and by more than one scientific reviewer; isn't  
8 that true?

9 A. I have seen that in probably two  
10 others.

11 Q. What I am suggesting to you, sir, is  
12 that scientists who are trained in the field and work  
13 in the field of forestry and ecology have expressed  
14 some concerns about scientific, what they term  
15 scientific misconceptions--

16 A. Right.

17 Q. --and that's not an isolated or  
18 biased case, there is that reaction to the views that  
19 you are expressing. Do you agree?

20 A. Of course. All I am trying to get  
21 across, Ma'am, is I have no problems with any of that.  
22 I would be very concerned if someone didn't disagree.

23 What I am trying to get across is there  
24 is a body out there that sees it a different way and  
25 this one is a selected one of a group. That's all I am

1 saying. So what I am saying is, there is a division of  
2 opinion and you will never get away from that period.

3 Q. Can we conclude this then with this  
4 arena of agreement and tell me if we can't. What you  
5 are saying to me is that debate is healthy?

6 A. That is correct.

7 Q. That differences of opinion are  
8 proper in our societies and are to be encouraged?

9 A. That is correct.

10 Q. And what I am saying to you is that  
11 in the scientific community, quite apart from the  
12 merits in a free and democratic society of differing  
13 opinions, in a scientific community great reservations  
14 have been expressed about the reliability of some of  
15 the principles and concepts that you have put to this  
16 Board?

17 A. That is correct.

18 Q. And that has been true on more than  
19 one occasion in more than one review?

20 A. That is correct.

21 Q. Thank you.

22 MADAM CHAIR: Ms. Cronk, how much longer  
23 will your cross-examination be?

24 MR. CRONK: I'm sorry, I wasn't conscious  
25 of the time. I will try to finish by noon, Madam

1 Chair, but I am not sure that if we break that I could  
2 do that.

3 MADAM CHAIR: I think our court reporter  
4 is going to need a short break.

5 MS. CRONK: That's fine, Madam Chair.

6 MADAM CHAIR: Ten minutes. And you think  
7 think you will be finished at noon?

8 MS. CRONK: No, I'm sorry, Madam Chair.  
9 What I was saying was that I will try to finish, but  
10 with the break I am not sure that I can do that. I  
11 will be about another hour.

12 MADAM CHAIR: Mr. Maser has an  
13 opportunity to finish today and it would be a shame to  
14 bring him --

15 MS. CRONK: He will not be prevented from  
16 finishing by me today.

17 MADAM CHAIR: Mr. Lindgren, how long will  
18 you be in re-examination?

19 MR. LINDGREN: Five minutes.

20 MADAM CHAIR: Well, then you will finish  
21 today.

22 THE WITNESS: I have no objection.

23 MADAM CHAIR: All right. We will take a  
24 ten-minute break now.

25 MS. CRONK: Thank you.

1 ---Recess at 10:50 a.m.

2 ---On resuming at 11:15 a.m.

3 MADAM CHAIR: Please be seated.

4 Ms. Cronk, the Board wants to finish  
5 before the lunch break today and we will go a little  
6 over twelve to accommodate that.

7 MS. CRONK: That's fine.

8 MADAM CHAIR: So everything that you can  
9 do to -- Mr. Martel is talking in my ear.

10 Everything you can do to speed up your  
11 cross-examination will be appreciated and it sounds at  
12 this point as though Ms. Seaborn and Ms. Blastorah  
13 won't have any questions.

14 MS. SEABORN: I won't have any questions,  
15 Madam Chair. Thank you.

16 MS. BLASTORAH: As I indicated, at this  
17 time I anticipate that I will.

18 MADAM CHAIR: Mr. Lindgren will be a  
19 short time in re-examination.

20 MR. LINDGREN: I guess the stopwatch will  
21 be running, so there will be just a few questions,  
22 Madam Chair.

23 MADAM CHAIR: Thank you, Mr. Lindgren

24 MS. CRONK: I told Mr. Maser and Mr.  
25 Lindgren at the end of the break, Madam Chair, that



1       there was a good news and there was bad news. The bad  
2       news was a fib, that I lost my place and we had to  
3       start over again and the good news was we are almost  
4       finished.

5                   MADAM CHAIR: Good. Thank you.

6                   MS. CRONK: Q. Mr. Maser, I provided to  
7       you earlier this week a copy of a document taken from a  
8       collection of symposium articles dealing with the  
9       sustained productivity of forest soils?

10                  A. Yes.

11                  Q. That particular article that I  
12       provided to you pertains to addresses given at the 7th  
13       North American Forest Soils Conference.

14                  Are you familiar with the article?

15                  A. I have it here. I have read it.

16                  Q. You have read it?

17                  A. Yes.

18                  Q. Thank you.

19                  MS. CRONK: Could that be the next  
20       exhibit, please, Madam Chair.

21                  MADAM CHAIR: This will be Exhibit 1686.

22                  MS. CRONK: Sorry, Madam Chair, what was  
23       the exhibit number, please?

24                  MADAM CHAIR: 1686.

25                  MS. CRONK: Thank you.

1                   MADAM CHAIR: Is this the complete -- no,  
2                   this is not the complete document. These are excerpts?

3                   MS. CRONK: This is one particular  
4                   article or address, Madam Chair, from a collection of  
5                   formal scientific presentations at the 7th North  
6                   American Forest Soils Conference. For the record this  
7                   one is entitled Sustained Productivity of Forest Soils  
8                   edited by four scientists, Gessel, Lacate, Weetman and  
9                   Powers.

10                  ---EXHIBIT NO. 1686: Excerpt from a collection of  
11   formal scientific presentations  
12   at the 7th North American Soils  
13   Conference entitled Sustained  
  Productivity of Forest Soils  
  edited by Gessel, Lacate, Weetman  
  and Powers.

14                  MS. CRONK: Q. Mr. Maser, turning to the  
15                   third page in of this exhibit. As I understand it,  
16                   this particular article as distinct from the overall  
17                   symposium proceedings was authored by or contributed to  
18                   by a collection of soils scientists; is that correct?

19                  A. That is correct.

20                  Q. And are you in a position to confirm,  
21                   if you are not please so indicate, but are you in a  
22                   position to confirm that of those scientists writing or  
23                   contributing to this article are many imminents soil  
24                   experts in North America?

25                  A. I don't know any of them, no, Ma'am.

1 Q. You can't confirm that. All right.  
2 Dealing first, if we could, please, with -- well,  
3 first, were you familiar with this conference?

4 Did you know that it had been held before  
5 I gave you this article?

6 A. No. I do not try --

7 Q. Are you familiar with the -- I'm  
8 sorry?

9 A. I do not try to keep up with these  
10 anymore. I could not keep up with one feel, let alone  
11 a dozen.

12 Q. I take it from that response that you  
13 are not familiar with the work done in the soils  
14 conference area on sustained productivity generally?

15 A. Yes, I am because a colleague of  
16 mine, David Perry, is very much involved in that.

17 Q. Are you aware, however, of the work  
18 that's been presented, for example, at the first of six  
19 conferences of the North America Forest Soils Group?

20 A. No. Do you mean have I read it? No.

21 Q. All right. I take from what you are  
22 saying then is you are familiar there is work being  
23 done although you may not know the specifics of it?

24 A. I know some of them, some of the  
25 specifics.

1 Q. Am I correct that in the case of this  
2 particular conference it was held in July of 1988 and  
3 the proceedings were published in 1990. Can you  
4 confirm that?

5 A. If that's what it says in here.

6 Q. If you look at the very front page it  
7 suggests the proceedings were held in July '88?

8 A. Yes.

9 Q. And that the proceedings were  
10 published in 1990; correct?

11 A. Right.

12 Q. And that the entire conference was  
13 devoted to the issue of the sustained productivity of  
14 forest soils?

15 A. That is correct.

16 Q. You would agree with me that this  
17 suggests that the entire issue of sustained  
18 productivity of the forest soils is an issue that has  
19 been long identified in Canada and has been the subject  
20 matter of study by numerous soils scientists for a  
21 number of years in this country?

22 A. In both countries.

23 Q. Yes. Could I ask you to turn to page  
24 53, please, of the article.

25 A. 53?

1 Q. 53, yes.

2 A. Okay.

3 Q. Am I correct that commencing at page  
4 53 there is a discussion entitled Separating Myth from  
5 Reality: Direct Evidence of Productivity Decline?  
6 That's the subject matter of this portion of the paper?

7 A. Yes.

8 Q. And what is being discussed in this  
9 section of the article is the available direct  
10 scientific evidence indicating one way or the other  
11 productivity decline in forest soils in Europe or  
12 elsewhere?

13 A. That is correct.

14 Q. And in the first two paragraphs on  
15 page 53 it is suggested that reliable direct evidence  
16 not surprisingly is rare?

17 A. That is correct.

18 Q. And they mean by that reliable direct  
19 evidence of soil productivity decline; is that correct?

20 A. That means reliable direct evidence  
21 on the scientific basis that fits acceptable scientific  
22 norms.

23 Q. In short, reliable direct evidence of  
24 soil productivity decline?

25 A. That is correct.



1 Q. And they go on to discuss  
2 specifically -- I don't think we need review it unless  
3 you wish to. They, too, go on to discuss this issue of  
4 spruce sickness in German forests, in the central  
5 European forests and specifically indicate that there  
6 was direct evidence of poor drainage factors being the  
7 causal factor for the spruce sickness phenomenon  
8 described in the scientific literature?

9 A. That is true. That is a management  
10 practice. That had nothing do particularly with soils.

11 Q. I understand that you have described  
12 it that way, but I am suggesting that it is the same  
13 issue we looked at earlier this morning?

14 A. Yes, it is the same issue.

15 Q. They go on to review any existing  
16 evidence elsewhere in Europe or in North America of  
17 declines in forest soil productivity?

18 A. Yes, they do.

19 Q. Could I ask you to go over to page  
20 58. At the bottom of page 58 do we see set out there  
21 conclusions regarding the available direct scientific  
22 evidence on this issue?

23 A. That is true.

24 Q. And to deal with that, starting at  
25 the bottom of page 58 it indicates:

1 "Despite its blemishes, evidence does  
2 suggest that potential productivity  
3 has declined under some conditions. In  
4 other cases, a decline seems more  
5 apparent than real."

6 That's the indication?

7 A. Yes.

8 Q. They go on to talk about what the  
9 nature of the evidence is, and perhaps to be fair we  
10 should have that on the record. They indicate:

11 "Where evidence is strongest, causes seem  
12 tied to management induced changes in  
13 organic or mineral soil horizons.

14 However, direct and convincing evidence  
15 of productivity decline is scattered  
16 thinly and its portability is unknown."

17 Stopping there for a moment. That's the  
18 views expressed?

19 A. Yes.

20 Q. What they are suggesting is, first,  
21 there is little direct and convincing evidence of a tie  
22 between forest management practices and a decline in  
23 soils productivity. That's the first thing that they  
24 are suggesting? They are saying there is little of it,  
25 but there is some there?

1 A. That is correct.

2 Q. They are also raising a concern  
3 whether it is portable, meaning whether you can  
4 extrapolate from the direct evidence such as it is in  
5 one area of the word to another. That's what  
6 portability means in that context?

7 A. That is correct.

8 Q. All right. And they are suggesting  
9 that that is an unknown factor as to whether that can  
10 legitimately and reliably be done?

11 A. That is correct.

12 Q. They go on to say:  
13 "Most research has centered on indirect  
14 evidence such as changes in soil  
15 properties. Assumed relationships  
16 between soil properties and stand growth  
17 have led to models for projecting the  
18 effects of management practices on  
19 long-term productivity. One should  
20 remember that soil variables are  
21 merely surrogates for productivity and  
22 rarely have they been calibrated  
23 successfully against stand productive  
24 potential, much less NPP."

25 What is NPP mean in that context?

1                   A. That is -- I know that. Net primary  
2           production.

3                   Q. And then they go on to say:  
4                   "Even rarer is the projection model that  
5                   has faced rigorous validation. A  
6                   critical analysis of the literature helps  
7                   us pinpoint gaps in existing knowledge  
8                   and define what we must do to fill them."

9                   A. Yes. Now, when it comes to the model  
10          here one must be a little careful I think. Models are  
11          linear simply because we do not know how to build the  
12          cyclic model. The system is cyclic and models over  
13          time tell us very little about how the system  
14          functions.

15                  Q. Well, again, leaving aside the  
16          methodology. May I suggest that what those authors are  
17          saying here is, first, this is little direct evidence  
18          tying in management practices to forest declines; am I  
19          right so far?

20                  A. Yes.

21                  Q. Secondly, that we are not at all sure  
22          that we can extrapolate whatever evidence there is in  
23          one jurisdiction from another --

24                  A. They aren't sure.

25                  Q. That's what they are saying?

1                   A. Yes, but you said we. I am saying  
2 they aren't sure.

3                   Q. All right. And, thirdly, they are  
4 suggesting that a critical analysis of the literature  
5 would help identify areas deserving of further  
6 attention?

7                   A. Yes. Inasmuch as the critical -- as  
8 that which is in the literature has looked at  
9 everything, which it has not.

10                  Q. They are suggesting that's where you  
11 start; isn't it? That's all they are suggesting?

12                  A. That's right.

13                  Q. Over on page 71, if you would,  
14 please. At page 71, do we find the summary and  
15 conclusions that they express?

16                  A. Yes.

17                  Q. And I would direct your attention to  
18 the third full paragraph in which they indicate as  
19 follows:

20                         "The only practical and accurate way of  
21 predicting the effects of soil  
22 manipulation on long-term productivity  
23 over a broad range of sites is to commit  
24 ourselves fully to the task. The most  
25 effective course is through a coordinated



1 series of designed stress field  
2 experiments that manipulate fundamental  
3 soil and site properties, examine system  
4 processes..."

5 Stopping there. You would certainly  
6 endorse that concept?

7 A. That is correct.

8 Q. "...an further examine and measure  
9 vegetative response. We propose a  
10 standardized network of experiments  
11 installed on benchmarks across site and  
12 climatic gradients. Because the design  
13 is standardized, results can be analysed  
14 as a common data set covering regional  
15 or broader landscapes. A range of sites  
16 must be examined to produce broadly  
17 useful results. An early product of  
18 immediate value to managers would be  
19 calibrations relating changes in soil  
20 properties to varying degrees and  
21 expressions of productivity."

22 Do I understand them to simply be  
23 suggesting this, Mr. Maser, that the way to proceed to  
24 deal with this issue, given \*\*posity of data and the  
25 concerns about whether it can be transported from one

1 jurisdiction to another as assisting in a scientific  
2 way, what you should do is establish some benchmark  
3 studies and that they should be carried out across site  
4 and climatic gradients on a broad range of sites if the  
5 information is to be useful?

6 A. That is correct.

7 Q. And they are suggesting, and  
8 remembering that these are soil scientists, they are  
9 suggesting that those studies should look at very  
10 specific things and what they should look at is  
11 fundamental soil and site properties, system processes  
12 and vegetative responses.

13 A. That is correct.

14 Q. Would you endorse that concept as a  
15 reliable scientific method approach to examining  
16 further this issue of the potential for and causes of  
17 soil productivity decline?

18 A. Yes, I would. There are, however,  
19 some other things here. If you go back to the  
20 paragraph on Summary and Conclusions. The first one,  
21 it states:

22 "Analysis of several celebrated  
23 causes purporting to show productivity  
24 declines from anthropogenic..." which  
25 means human,

1 "...causes shows that some declines can  
2 be explained by factors other than poor  
3 forest management. Yet, direct evidence  
4 for decline does exist, although findings  
5 are few and scattered. Such  
6 findings, coupled with less-direct  
7 evidence from short-term experiments and  
8 from retrospective..." which means going  
9 historical studies,  
10 "...point to soil macroporosity in site  
11 organic matter..." which is all I was  
12 talking about. That's woody material, et cetera,  
13 "...as the key variables linking  
14 management practices to long-term  
15 productivity."

16 If you go to some of the other pages at  
17 the ends where they come to conclusions, the thing that  
18 that occurs over and over again is the soil organic  
19 material, and that's all I am suggesting.

20 There is one in here where they  
21 specifically mention mycorrhizal fungi as being taken  
22 out of the site which is the reason for the collapse of  
23 the soil and its infertility. That's all I have been  
24 suggesting we need to look at. That is also in this  
25 article.

1                   Q. I may have misunderstood, I thought  
2     you were going a little bit further and were  
3     suggesting, as you did with respect to plantation  
4     management in Europe, Mr. Maser, that there was a  
5     direct proven correlation between intensive plantation  
6     management and soil productivity declines. You and I  
7     have already discussed that.

8                   I suggest to you that in this article  
9     what, in fact, these scientists are saying is that  
10    there is some direct evidence, limited in nature and of  
11    doubtful portability that management practices can be  
12    traced to that, that the issue should be looked at  
13    further and they in fact go further and say that the  
14    value of the existing data in the existing models is  
15    unknown and has to be examined.

16                  A. You misunderstood me then. I was not  
17    saying that there was direct evidence of plantation  
18    management in decline of the soils. That is not what I  
19    was saying.

20                  What I am saying is that plantation  
21    management has depleted the organic matter in those  
22    soils and plantation management has stressed the sites  
23    which have not been looked at. I did not say there was  
24    direct evidence between plantation management and soil  
25    infertility. That is not what I have said at any time

1 in this hearing and that is not what I intend to say.

2 Q. All right. You would not have the  
3 Board then take that from the evidence you have given?

4 A. No, not at all.

5 Q. What I am suggesting to you is, what  
6 this scientific symposium concluded was that on the  
7 issue of whether soil productivity decline is caused by  
8 or contributed to by management practices, that there  
9 isn't enough direct evidence out there to draw that  
10 conclusion, it should be looked at and they propose a  
11 certain way to do that?

12 A. Yes, and they did say one other  
13 thing. Where there is direct evidence, the one thing  
14 that shows up again and again is a loss of soil organic  
15 material. That is the only point that I had made.

16 Q. I see.

17 A. That has been drawn as a direct way  
18 of loss of nutrients in the soil and that's all I have  
19 said and this report says the same thing.

20 Q. All right. I thank you for that.

21 Would you agree in general terms -- let's  
22 step back if we could then, Mr. Maser, and talk  
23 generally about ecological evaluations, assessments of  
24 any kind.

25 Would you agree in general terms that



1 ecological evaluations of the response of eco-systems  
2 to forest management practices, that those type of  
3 evaluations have to be first site specific? Would you  
4 agree with that so far?

5 A. I do not agree that they all  
6 necessarily have to be site specific.

7 Q. But that that would be an  
8 advantageous thing for them to be if they are to be  
9 useful?

10 A. Depending on the question that's  
11 asked. Not all questions need to be answered on a  
12 site-specific basis.

13 Q. The proposition I am putting to you  
14 is this, that if you are going to look at it as a  
15 scientist, the response of eco-systems to forest  
16 management practices, you have to be very cautious to  
17 ensure that they are specific to the type of site under  
18 review, under discussion?

19 It is not good enough to take a broad  
20 brush stroke, you have to know what kind of site  
21 circumstances are at issue because that dictates the  
22 nature of the ecosystem present?

23 A. That, as I said, depends on the  
24 questions that are asked. Some questions, yes; other  
25 questions, no.

1 Q. All right. Would you agree that  
2 those kinds of evaluations, again an examination of the  
3 response of ecosystems to management practices, should  
4 be quite specific as to the nature of the disturbances  
5 being reviewed?

6 A. That is true.

7 Q. And quite specific as to the type of  
8 ecosystem condition being analysed?

9 A. The type of forest condition. I  
10 don't know how you are defining ecosystem.

11 Q. Forest condition, then.

12 A. That is true.

13 Q. And that there are -- depending on  
14 the questions asked in your view, it may well be that  
15 those kinds of evaluations have to be site specific as  
16 well?

17 A. That is true.

18 Q. Would you agree generally that those  
19 kinds of analyses; that is, ecological evaluations, do  
20 not lend themselves reliably to generalizations?

21 A. I would not go that far because you  
22 can study something, as I have for a lot of years, a  
23 very specific thing and you will never learn everything  
24 about it.

25 What I would suggest is the more you

1 know - this is the challenge that we have when you  
2 study something for a long time - the less you can  
3 generalize. On the other hand, if you do not  
4 generalize to some extent, we would never understand  
5 the patterns.

6 Generalization is always, always going to  
7 be risky because what you learn after a period of years  
8 is there is no pat answer to anything. Anything that  
9 you think you understand you will find exceptions to,  
10 and this is why I do not like being classified as an  
11 expert and this is why I do not like the idea of  
12 knowing anything because I don't. I cannot say that.

13 Q. Is the converse also true, that the  
14 less that is known scientifically about a particular  
15 issue the more dangerous the generalization?

16 A. Not necessarily. The less you know  
17 sometimes the easier it is to generalize and if it is  
18 done prudently it could be a very accurate  
19 generalization.

20 Generalization is a very tricky thing. I  
21 find generalization always to be dangerous no matter  
22 how you do it from somebody's point of view. I also  
23 understand if we do not generalize in some way, one, we  
24 will never say anything, particularly in science, we  
25 will never see the broad patterns and, three, we cannot

1       then take science and have any context for social  
2       change.

3                       Q.   Would you agree --

4                       A.   But there are pitfalls in it always.

5                       Q.   Leaving aside the issue of social  
6       action, Mr. Maser, would you agree with me that from  
7       the perspective of reliable science generalizations are  
8       always dangerous?

9                       A.   They are dangerous period.

10                      Q.   And in particular from the  
11       perspective of reliable science?

12                      A.   Well, Ma'am, that depends on how you  
13       define reliable science.  If you are defining reliable  
14       science within the context of the narrow social  
15       constraints of science, I would agree.

16                      Q.   You are saying that to define science  
17       we now have to get our get constructs of sociology  
18       nailed down?

19                      A.   I'm sorry?

20                      Q.   You are now saying that to define  
21       reliable science we have to get our constructs of  
22       sociology nailed down?

23                      A.   That would be correct.

24                      Q.   Mr. Maser, I am showing you a copy of  
25       a document entitled Review of Forest Primeval:  The

1 Natural History of an Ancient Forest by Chris Maser.

2 Are you familiar with the contents of this document?

3 A. No, I have not seen this one.

4 Q. It was provided to you earlier. Have  
5 you not have a chance to read it?

6 A. Pardon me?

7 Q. It was provided to you earlier. Have  
8 you not had a chance to read it?

9 A. I did not get this one.

10 MS. CRONK: Madam Chair, I apologize for  
11 that. It was provided earlier. I am afraid I am going  
12 to have to ask to provide the witness at least five  
13 minutes to review the document.

14 THE WITNESS: I know Hamish Kimmins. I  
15 know about what he would say, so you may go ahead.

16 MS. CRONK: I think in the circumstances,  
17 Madam Chair, could I ask for five minutes for the  
18 witness to have an opportunity to review it, please.  
19 It is unfair in my view to ask him questions --

20 MADAM CHAIR: Is this your last line of  
21 questioning?

22 MS. CRONK: No, there are one or two  
23 more.

24 MADAM CHAIR: Are you giving the Board a  
25 copy of that?



1 MS. CRONK: Yes, I would be pleased to.  
2 I don't know whether you wish to rise while he reviews  
3 it.

4 MADAM CHAIR: No, we will wait for Mr.  
5 Maser to look it over.

6 MS. CRONK: Thank you. Could that then  
7 be the next exhibit, please.

8 MADAM CHAIR: This will be Exhibit 1687.  
9 This is a three-page document?

10 MS. CRONK: I'm sorry, Madam Chair, I  
11 didn't hear you?

12 MADAM CHAIR: This is a three-page  
13 document?

14 MS. CRONK: Yes, it is. It is a review  
15 of Mr. Maser's - when he has had a chance to complete  
16 reading it - a review by Professor Hamish Kimmins of  
17 the University of British Columbia of earlier work done  
18 by Mr. Maser entitled Review of Forest Primeval: The  
19 Natural History of an Ancient Forest.

20 MADAM CHAIR: What is the date?

21 MS. CRONK: My understanding is that it  
22 the latest issue in 1990, that is December. I  
23 understand it to be a publication of the Northwest  
24 Environmental Journal.

25

1 ---EXHIBIT NO. 1687: Three-page review by Professor  
2 Hamish Kimmins of the University  
3 of British Columbia of ealier  
4 work done by Mr. Maser entitled  
5 Review of Forest Primeval: The  
6 Natural History of an Ancient  
7 Forest.

8 THE WITNESS: Yes.

9 MS. CRONK: Q. Thank you, Mr. Maser. I  
10 have one or two questions only. Could I ask you to go  
11 to page 2, if you would, please. First of all, did I  
12 understand to say that you knew Professor Kimmins, knew  
13 of him?

14 A. I know him.

15 Q. You are familiar with his work  
16 generally?

17 A. Yes.

18 Q. Am I correct that he is a recognized  
19 forest ecologist connected with the Faculty of Forestry  
20 at the University of British Columbia?

21 A. He was one of the better scientists,  
22 yes.

23 Q. And his areas of accreditation, if I  
24 can put it that way, I know you don't like the word  
25 expertise, are in both forest ecology and forestre  
generally?

A. Forest ecology, mostly soil science.  
He is primary a soil scientist.

1 Q. Would you recognize him as a forest  
2 ecologist?

3 A. Of course.

4 Q. At page 2, if I could direct your  
5 attention to -- unfortunately the paragraph in the  
6 middle of the page is very lengthy, the eighth or ninth  
7 line up from the completion of that paragraph.

8 Now, this concerns another book and I  
9 don't propose to get into that, Mr. Maser, that you  
10 have written and it is a review of another book, but  
11 the observations in which I am interested begin the  
12 sentence starting:

13 "I am certain that Chris Maser would  
14 agree..."

15 Do you see that? It is about the ninth  
16 line up from the--

17 A. Oh, from the bottom.

18 Q. --bottom of the second paragraph.

19 A. Yes.

20 Q. "I am certain that Chris Maser would  
21 agree..."

22 Do you have that?

23 A. Yes.

24 Q. Professor Kimmins indicates, and he  
25 is talking about the issue of measuring responses of

1 forest ecosystems to management and human induced  
2 disturbance. Am I correct that that's the context?

3 A. Yes.

4 Q. And he indicates:

5 "I am certain that Chris Maser would  
6 agree that ecological evaluations of the  
7 responsive ecosystems to forest  
8 management must be ecologically sound,  
9 site specific, disturbance specific and  
10 ecosystem condition specific."

11 Stopping there for a moment. Do you  
12 generally agree with that?

13 A. Yes.

14 Q. He then indicates:

15 "They generally cannot be made on the  
16 basis of snapshot evaluations of the  
17 visual appearance of the ecosystem  
18 immediately following disturbance."

19 Do you agree with that?

20 A. Yes.

21 Q. He then indicates:

22 "And they do not lend themselves to  
23 generalizations such as 'clearcutting  
24 destroys ecosystems'. There is no  
25 scientific basis for and little

1 scientific content in such statements."

2 Do you agree?

3 A. I do and that was not in the book.

4 Q. I'm sorry?

5 A. I have never in my life said  
6 clearcutting destroys ecosystems.

7 Q. All right. And you agree with the  
8 comments made in that regard by Professor Kimmins?

9 A. That clearcutting destroys  
10 ecosystems?

11 Q. No, with the two lines I just read to  
12 you that ecosystem evaluations do not lend themselves  
13 to generalizations and that there is no scientific  
14 basis for and little scientific content in such  
15 statements; that is, such generalizations? He has  
16 given an example.

17 A. I do not agree that generalizations  
18 cannot be made and they do not lend themselves to  
19 generalizations.

20 Q. Do you agree that there is no  
21 scientific basis for and little scientific content in a  
22 a statement to the effect that clearcutting destroys  
23 ecosystems?

24 A. Yes, and I have never said that.

25 Q. Would you also agree that it is more



1 risky to use generalizations as a basis for management  
2 decisions in forestry than those based on scientific  
3 rigor?

4 A. No.

5 Q. You don't think it is more risky to  
6 do that?

7 A. No, because scientific rigor is a  
8 perception and I have the same problem with scientific  
9 rigor because we are limited by our social constraints  
10 of and what I understand and what Hamish understands  
11 can be equally rigorous and seen from two points of  
12 view.

13 I do not think that rigor itself is a  
14 model to be held up. I also think that with study  
15 generalizations can be made and must be made because  
16 they have certainly been made in management about  
17 clearcutting. There have been vast generalizations  
18 made about clearcuts and shelterwood and all of the  
19 logging techniques. There is nothing wrong with  
20 generalizations. They must be made very carefully.

21 Keep in mind, I did not write this book  
22 as a science book. I wrote this as a story. This is  
23 written as a historical novel and some of it,  
24 therefore, has been taken out of context, which I have  
25 no problem with. Maybe I was not clear in how I

1 expressed it. The Redesigned Forest was written for a  
2 point. This was simply written as a story for the  
3 public. Nothing more and nothing less.

4 Q. And I think Professor Kimmins, in  
5 fact, in the first paragraph suggests that in quite a  
6 flattering way about the work that you did in this  
7 earlier book.

8 He suggests, for example, that the book  
9 reflects your self-declared development from forest  
10 scientist to spiritual forester. Is that how you  
11 regard yourself?

12 A. No.

13 Q. You don't?

14 A. No.

15 Q. If I understand what you have also  
16 been saying to the Board, and perhaps this encapsules  
17 it in a fair way and you can tell me if it doesn't,  
18 what you have been saying to the Board is you believe  
19 that both scientific rigor, if I can put it that way,  
20 and reliable science must be defined at least in the  
21 outset in a sociologic context?

22 A. That is true.

23 Q. You are saying to me that you do not  
24 accept that there is such a thing as scientific rigor  
25 as a matter of fact, demonstrable proven scientific

1 fact?

2 A. That is true. What I am suggesting  
3 is that scientific rigor, the way it is looked at now,  
4 is an intellectual isolation from all other values.  
5 And as I said in the beginning, I do not think we can  
6 afford to look at the world in isolation.

7 Q. You also gave some evidence to the  
8 Board concerning full tree harvesting, and I understood  
9 you to say that the terms whole tree harvesting and  
10 full-tree harvesting were to you synonymous?

11 A. Were to use synonymous?

12 Q. Were to you synonymous, that you were  
13 using them synonymously?

14 A. I was told they were the same.

15 Q. You were told they were the same?

16 A. Yes.

17 Q. I see. You were told that by --

18 A. We call it whole tree harvesting, you  
19 call it full-tree harvesting. So far as I understood  
20 they were the same practice.

21 Q. All right. When you refer to whole  
22 tree harvesting, are you in fact referring to a  
23 harvesting system which involves harvesting all  
24 components of a tree except for the stump?

25 A. That is correct.

1 Q. All right. And in that sense you  
2 understand it to be synonymous with what we term  
3 full-tree harvesting?

4 A. That is correct.

5 Q. When asked by the chair of the Board  
6 earlier this week whether full-tree harvesting was  
7 practised in the United States, I understood your  
8 answer to be: No -- this is as I wrote it down, Mr.  
9 Maser, I may have done it incorrectly, but as I wrote  
10 it down you said: No, it has been carried out in the  
11 northeastern United States.

12 Do you recall giving that evidence?

13 A. Yes, but I said: No, it is not done  
14 in the northwest, it is done in the northwest.

15 Q. So your answer then was restricted  
16 only to the Pacific northwest?

17 A. It is not done in the northwest, it  
18 is done in the northwest. That is the answer to the  
19 question.

20 Q. So that I am clear, you were then  
21 saying that full-tree harvesting, in the context that  
22 we have just defined it, is not practised in the  
23 Pacific northwest but it is elsewhere in the country?

24 A. Yes, and my understanding is that it  
25 has also been practised on Vancouver Island in Canada.

1 Q. All right. Well, leaving aside --

2 A. But it has not been done in the  
3 Pacific northwest United States to my knowledge.

4 Q. Would I be correct in suggesting to  
5 you that full-tree harvesting in the United States is,  
6 in fact, carried out in more than just the northeast  
7 section of the country, but as well in the southeastern  
8 States, the Lake States, various other areas?

9 A. Yes, I would not be surprised.

10 Q. You don't know, though, one way or  
11 the other?

12 A. I know they do in the southeast. I  
13 am not familiar with the Lake States.

14 Q. Would it be fair then to say that you  
15 are not familiar with the extent of full-tree  
16 harvesting as an accepted management practice in the  
17 United States save for its prevalence in the Pacific  
18 northwest which you have described as being nil?

19 A. I do not know the level of full-tree  
20 harvesting in the United States, no.

21 Q. All right, thank you.

22 A. I do know that research at Oregon  
23 State that is ongoing now has some concerns about the  
24 nutrient drain from full-tree harvesting which they  
25 have simulated.



1 Q. Let's just deal with your own section  
2 of the country then, the Pacific northwest.

3 Are you aware of any harvesting system in  
4 that area of the country, Mr. Maser, any harvesting  
5 system that can accommodate in practical terms roadside  
6 delimbing of trees in excess of 100 tall?

7 A. Practices that can what?

8 Q. I am asking you whether in your own  
9 part of the country where your work has been, the  
10 Pacific northwest, are you aware of any harvesting  
11 system that can accommodate roadside delimbing of trees  
12 in excess of 100 feet tall?

13 A. No.

14 Q. The implication, what I am suggesting  
15 to you, Mr. Maser, is this, I understood you to tell  
16 the Board that -- or at least to infer and perhaps I  
17 was wrong, correct me if I am wrong.

18 I understood you to be inferring that the  
19 reason that full-tree logging was not carried out in  
20 the Pacific northwest parts of the United States was  
21 because of ecological concerns, concerns for depletion?

22 A. No, not at all.

23 Q. As I wrote down your response to  
24 Madam Chair, you said it was because of concerns for  
25 depletion we have found serious problems with it

1 ecologically. Did you intend to suggest that that was  
2 the reason it was not done?

3 A. No.

4 Q. I see.

5 A. I don't know that they even thought  
6 of doing it.

7 Q. I'm sorry?

8 A. I don't know that they even thought  
9 of doing it. That has nothing to do with why it isn't  
10 done.

11 Q. In fact, operationally in the Pacific  
12 northwest it can't be done on a large number of your  
13 species; isn't the case?

14 A. No, Ma'am, it can be done in  
15 plantations and in young forests.

16 Q. But with respect to a large number of  
17 your species, given their height, size, volume, it  
18 can't physically be done in the sense that it is  
19 generally known in the balance of the United States?

20 A. No, Ma'am, it can be done when all of  
21 those species are young. You are thinking about the  
22 old growth.

23 Q. Yes. Or in the intermediate stages.

24 A. No. In the young stands and the  
25 intermediate where we are putting most of the forests

1 now it can be done very easily.

2 Q. Well, let's just take a --

3 A. If you are saying it is a size  
4 dependent thing, it can be easily done in the Pacific  
5 northwest; there is nothing to stop it.

6 Q. On young growth?

7 A. Yes.

8 Q. But nothing beyond that?

9 A. No.

10 Q. All right. Could I ask you to go to  
11 page 19 of your witness statement, please. The next  
12 issue that I want to --

13 A. One moment, Ma'am, I have lost my  
14 witness statement somewhere in this mess. I've got it.

15 Q. The next issue that I have one or two  
16 questions for you about, Mr. Maser, concerns the  
17 evidence you have given to the Board regarding genetic  
18 management.

19 A. Yes, Ma'am.

20 Q. And at page 19 of your witness  
21 statement you make a number of comments about this.  
22 For example, in the last paragraph on page 19 you are  
23 expressing a number of concerns throughout these pages  
24 about old growth forest and ecological sustainability  
25 and you say on this page that:

1 "It is important to remember a number of  
2 things."

3 The third item that you list concerns  
4 genetic management and you say:

5 "Third, we are playing genetic roulette  
6 with plantations of the future. What if  
7 our genetic engineering, our genetic  
8 Cloning, our genetic streamlining, our  
9 genetic simplifications run amuck as they  
10 so often have in agriculture and animal  
11 husbandry around the world. Native  
12 forests, be they old or young, are thus  
13 imperative because they and only they  
14 contain the entire genetic code for  
15 living healthy adaptable forests.

16 Do you see that?

17 A. Yes.

18 Q. That, I take it, is an accurate  
19 reflection of your views of what you were intending to  
20 outline to the Board in your evidence?

21 A. Yes.

22 Q. Could we agree, Mr. Maser, that you  
23 have no particular training or work experience in the  
24 area of forest or tree genetics?

25 A. That is tree.

1 Q. All right. Now, I understood you to  
2 say in your evidence to the Board that old growth, old  
3 growth has the entire genetic code in tact. Did you  
4 say that?

5 A. Yes.

6 Q. All right. Did you mean to suggest  
7 by that that for that reason old growth held an  
8 advantage in ecological terms over young growth?

9 A. No. You will notice it has native  
10 here and if you remember, I said in Colorado they are  
11 managing forests and maintaining the native gene with  
12 natural regeneration. That is a way of maintaining the  
13 native gene pool and keeping it in tact.

14 Q. Would you agree with me - just to  
15 explore this a bit further - that young growth stands  
16 in tact have greater genetic diversity than old growth  
17 stands because more individuals are present?

18 A. No.

19 Q. You don't agree with that?

20 A. Not necessarily.

21 Q. In terms of a pure genetic concept --  
22 and please indicate if you feel you are not in a  
23 position to deal with this.

24 In terms of a basic genetic concept, it  
25 is not true that with only a few individuals in any



1 population you do not have full genetic variability  
2 present?

3 A. That's true, but you did not specify  
4 how many trees were in the stand as opposed to how many  
5 trees were cut. You just made a general statement and  
6 that's what I disagreed with.

7 Q. What I am suggesting to you is that  
8 as a general proposition in genetic terms - and please  
9 indicate again if you don't wish to respond to this -  
10 as a general proposition it is recognized by genetic  
11 scientists that young growth stands have greater  
12 genetic variability and diversity present than do old  
13 growth stands because their numbers, the number of  
14 separate individuals is larger?

15 A. Ma'am, we are at cross-wires here.  
16 What I am saying is, your original statement was and  
17 you said it again, that young growth stands have more  
18 trees than old growth stands. That is not necessarily  
19 true.

20 If they have more, then the answer is  
21 yes, but there are many sites on which they do not have  
22 many young growth trees in which the case the answer  
23 would simply be no. In the sense of natural  
24 regeneration you are saying it is the numbers. I have  
25 no objection to that, that's true, but you didn't say

1 that. If the natural regenerated stand has more  
2 individuals than the stand that was cut, the answer is  
3 obviously yes.

4 Q. All right.

5 A. But if it is understocked, then the  
6 answer is no.

7 Q. I will take your answer on that  
8 basis. You are not quarreling with the basic  
9 proposition?

10 A. No.

11 Q. What I am suggesting to you,  
12 generally speaking, leaving aside the well stocked old  
13 growth stand, leaving aside the well stocked old growth  
14 stand, as a general proposition it is recognized in  
15 genetic science that genetic diversity is favoured in  
16 the young growth populations?

17 A. No.

18 Q. You don't agree?

19 A. No, because it is favoured -- look,  
20 Ma'am, what you are saying is that it has to do with  
21 numbers. I agree with that. It is more favoured if  
22 there are more of the young than there are of the old.  
23 That's all I am saying.

24 If there are less, then it isn't and  
25 that's site specific, and I think that's what we are

1       trying to get at. That I agree with, but not all  
2       stands of young forests have more trees.

3                   Q. I understand and I accept that. I  
4       accept your evidence on that basis, Mr. Maser.

5                   Are you familiar with a concept in  
6       genetic management known as inbreeding co-efficients.  
7       Are you familiar with that term?

8                   A. Yes.

9                   Q. Do you know what it means?

10                  A. Roughly. I'm not a statistician.

11                  Q. All right. Are you in a position to  
12       confirm for me that the older the stand the greater the  
13       amount of inbreeding in genetic terms, or do you know?

14                  A. No, I don't know.

15                  Q. Can you confirm, and please indicate  
16       if you can't, that the inbreeding co-efficient is  
17       recognized to be higher in old growth stands than in  
18       young ones?

19                  A. I suspect that would depend on the  
20       tree species and its breeding strategies.

21                  Q. Do you know?

22                  A. In Douglas fir it would not be true  
23       because they did not plant themselves underneath their  
24       own shade.

25                  Q. My question to you, Mr. Maser, was

1 could you confirm for me --

2 A. Maybe I misunderstood your question.

3 Q. All right. Let me put the  
4 proposition to you again and if you don't know please  
5 so indicate.

6 I am suggesting to you that as a general  
7 proposition in genetic science it is recognized that  
8 the inbreeding co-efficient is higher in old growth  
9 stands than in young growth stands. Do you know?

10 A. No.

11 Q. And am I correct in suggesting that  
12 the inbreeding co-efficient is a term used to measure  
13 the vulnerability of a stand to inbreeding.

14 A. Yes.

15 Q. And that the higher the co-efficient  
16 the more inbreeding is likely to occur?

17 A. Yes.

18 Q. And that's not a desirable thing in  
19 terms of genetic diversity?

20 A. Yes.

21 Q. One other aspect of your evidence,  
22 Mr. Maser, that had to do with a specific type of  
23 management practice concerned clearcutting.

24 I understood you to tell the Board in  
25 your evidence that based on the experience in your part

1 of the United States in the past with clearcutting that  
2 there was a move towards clearcutting mimicking fire  
3 patterns.

4 A. That is starting now.

5 Q. Yes. Do I understand it to be your  
6 view that that is a desirable direction?

7 A. That is correct.

8 Q. All right. What specifically do you  
9 mean in that context by the reference to fire pattern?

10 A. To look at the fire pattern, how they  
11 have burned, we can tell by stand age and construction  
12 from the air, and to mimic those patterns in size and  
13 shaped and distribution of management.

14 Q. So that would include size, fire  
15 pattern size?

16 A. Correct.

17 Q. Fire pattern distribution?

18 A. That is correct. Landscape patterns.  
19 To mimic landscape patterns.

20 Q. All right. If that was being done,  
21 if those were the objectives that were being sought to  
22 be achieved in clearcutting, would I be fair in  
23 suggesting that you would not be opposed to  
24 clearcutting as a management technique?

25 A. I have never been opposed to



1 clearcutting as a management technique.

2 Q. Can we go so far as to say that you  
3 would not be troubled by clearcutting as a management  
4 technique particularly if that was the objective,  
5 mimicking fire patterns?

6 A. I am not troubled by it as a  
7 management technique. How it is done is something  
8 else, but the tool I have absolutely no quarrel with.  
9 I never have.

10 Q. And your evidence was quite clear on  
11 that. I am now addressing the how. And what you have  
12 said to the Board, as I understood it, was that a  
13 desirable way to go about it was to mimic fire patterns  
14 and what I am saying to you is that's the how  
15 component, if that's how we try to do it, would you be  
16 satisfied with respect to the continued use of  
17 clearcutting as a management practice?

18 A. Yes, but mimicking fire doesn't  
19 necessarily mean just clearcutting.

20 Q. I understand. Could I ask you to go  
21 back, Mr. Maser, if you would, please, to the  
22 scientific review of your book, The Redesigned Forest,  
23 that we looked at--

24 A. Okay. Which page?

25 Q. --before the break. That was --

1 A. That is 1684.

2 Q. Exhibit 1684.

3 A. Yes.

4 Q. I would ask you to go to page 5 of  
5 it, if you would, please.

6 A. Okay.

7 Q. Am I correct that on page 5 are set  
8 out the overall conclusions and observations of these  
9 reviewers commencing at the top of the page?

10 A. Yes.

11 Q. All right. Looking at the first  
12 sentence in the first paragraph, the reviewers suggest  
13 as follows:

14 "The premise underlying much of Maser's  
15 philosophy is that forest ecosystems  
16 function through precariously balanced  
17 interdependencies where alteration leads  
18 inexorably downward."

19 Stopping there for a moment. In general  
20 terms is that an accurate description of your premise  
21 regarding the functioning of forest ecosystems?

22 A. No.

23 Q. What these authors are suggesting, as  
24 I understand it, really is that you express concern  
25 from an ecological perspective that our forests are

1 fragile because of the interdependency of various  
2 components of the process.

3 Stated that way, is that a correct  
4 summation of your views?

5 A. No. Some areas like the old growth  
6 are more fragile to disturbance than young forests and  
7 that has to do with the complexity because when it  
8 starts to unravel it goes all the way, and that is part  
9 of the theory of chaos and the theory of  
10 self-critically organizing systems.

11 Q. All right. That's very helpful, Mr.  
12 Maser, because I take from that that you would not want  
13 the Board to take away from your evidence the  
14 understanding or impression that you were of the view  
15 that forest ecosystems are inherently fragile?

16 A. They are inherently very resilient.

17 Q. Exactly. In fact, in the last part  
18 of this paragraph, that is the first paragraph on page  
19 5, these scientists suggest as follows:

20 "Forest ecosystems, however, contain much  
21 functional duplication and have many  
22 compensatory interactions. Centuries of  
23 experience and much scientific  
24 investigation in moist temperate forests  
25 seem to provide far more support for a

1                   premise of forest resilience to  
2                   disturbances associated with current  
3                   management activities..." than for what  
4       you are telling me they erroneously thought was your  
5       philosophy of extreme fragility?

6                   A. I do not agree with this statement.  
7       What I have said, they have extreme resilience with  
8       disturbance regimes not necessarily with our disruption  
9       of the disturbance regimes through management such as  
10      the suppression of fire which I have said earlier is a  
11      foreign introduction into a system and may not be  
12      adapted to cope with.

13                  Q. Would you agree with me -- let's go  
14      back.

15                  A. Let me finish this thought.

16                  Q. Okay.

17                  A. To the extent -- and this is the  
18      thrust of what I have been trying to get across.

19                  To the extent that our management mimics  
20      those disturbances with which the system is adapted to  
21      cope, the resilience can go on, as far as I am  
22      concerned, indefinitely.

23                  To the extent that the disturbances that  
24      we perpetrate on the land are counter to or deviate  
25      widely from those disturbance regimes with which the

1 system is adapted to cope, we are a serious disruption  
2 and it may be at our peril over time. That's all I  
3 have been trying to get across.

4 Q. Do I understand correctly from that  
5 then that so long as man's management practices seek to  
6 mimic or duplicate the patterns of nature, as for  
7 example in the case of clearcutting and fire, so long  
8 as that is the objective and manner in which they are  
9 carried out, I understand you to be saying that you  
10 would regard the forest ecosystem structure to be  
11 resilient in those circumstances?

12 A. Resilient and sustainable.

13 Q. And sustainable?

14 A. That is correct.

15 Q. Two, you are not saying, are you,  
16 that intervention by man per se; that is, any man  
17 introduced disturbance of and in itself converts forest  
18 resilience to forest fragility? You are not saying  
19 that?

20 A. No.

21 Q. All right. So it would depend on the  
22 type of disturbance introduced by man; is that fair?

23 A. That is correct.

24 Q. The way it is introduced?

25 A. That is correct.



1 Q. Its duration?

2 A. And its timing.

3 Q. Its timing. And the manner in which  
4 it is carried out?

5 A. That is correct.

6 Q. Would it be fair to say that it would  
7 be so erroneous indeed to conclude that man initiated  
8 disturbances in the forest of and in themselves are in  
9 any way dangerous to forest ecosystems?

10 A. Well, if you put all of those  
11 qualifications on it I would say no.

12 But, on the other hand, I will also  
13 suggest that over time human introduced disturbances  
14 may be something, if they are gentle enough and  
15 perpetrated long enough, the system may even be able to  
16 adapt to.

17 I think to me it is the suddenness and  
18 the abruptness with which we are making some of these  
19 shifts that is likely to be the problem.

20 Q. You are talking about the timing of  
21 introduction of some of these?

22 A. That is correct.

23 Q. And all I am --

24 A. And the uniformity and the vastness  
25 of the areas.

1                   Q. What I am suggesting to you, sir,  
2                   given all of what you have just said to me, that it  
3                   would be in your view -- I am suggesting that it would  
4                   be inappropriate and erroneous to conclude that  
5                   invention by man in the forest per se converts what is  
6                   inherently a resilient forest ecosystem to a fragile  
7                   forest ecosystem. That just is not necessarily the  
8                   case at all?

9                   A. No.

10                  Q. You would agree that that is not  
11                  necessarily the case?

12                  A. I would agree that's not necessarily  
13                  the case.

14                  Q. Thank you. And it depends on all of  
15                  the circumstances that we have discussed?

16                  A. That is correct.

17                  Q. Then finally, Mr. Maser, do you still  
18                  have the copy of your book, The Redesigned Forest, that  
19                  I lend to you yesterday.

20                  Could I ask you to go, if you would,  
21                  please, to page (xv) and the preface of the  
22                  introduction to your book.

23                  A. (xv)?

24                  Q. Yes.

25                  A. Okay.

1                   Q. Mr. Maser, we've had a lengthy  
2 discussion over the last day and a half and I ask you  
3 to accept and perhaps you can indicate, do you  
4 acknowledge that the type of issue that you have been  
5 raising with this Board, as we said at the beginning,  
6 are in your mind questions that they should consider to  
7 determine whether they are timely and applicable to the  
8 Ontario experience?

9                   That's the purpose of what you have been  
10 saying in your evidence?

11                  A. If you remove the word should, yes.

12                  Q. All right. And you are saying no  
13 more than that with respect to these issues; is that  
14 correct?

15                  A. That is correct.

16                  Q. And you are making no judgments about  
17 or recommendations concerning what should or should not  
18 be done in northern Ontario because you have no  
19 information base upon which to do so?

20                  A. That is correct.

21                  Q. With respect to anything that you  
22 talked about?

23                  A. That is correct.

24                  Q. You have also talked, if I might put  
25 it this way and I do so with respect, you have talked

1 about forest management in a very philosophical context  
2 over the last several days to highlight, I take it, to  
3 the Board your concerns about the need to approach  
4 this; that is, forest management, from philosophical  
5 and sociological perspective?

6 A. That is correct, because what we do  
7 in management is based on a philosophical and  
8 sociological view.

9 Q. Would you accept from me that that  
10 alone may be an approach to forest management that some  
11 areas, some jurisdictions will not find acceptable? It  
12 is one that you prefer, one that you recommend, but it  
13 may not be acceptable from area to area?

14 A. That is true.

15 Q. All right. And you also spoke in  
16 your evidence about the new paradigm which you thought  
17 should be adapted in forestry and you explained what  
18 you meant by that and the underpinnings for it. You  
19 talked about trusteeship versus stewardship. Do you  
20 recall that?

21 A. Yes.

22 Q. All right.

23 A. However, Ma'am - excuse me - I have  
24 not mentioned a new paradigm in forestry. I am not  
25 proposing a new paradigm.

1                   Q. In your witness statement to the  
2 Board did you not expressly talk about the adoption of  
3 a new paradigm in forestry?

4                   A. In terms of trusteeship, but that's  
5 only one thing.

6                   Q. All right. But you did in that  
7 context?

8                   A. In that context, yes.

9                   Q. What I am going to suggest to you is  
10 that in the introduction to your book, The Redesigned  
11 Forest, you, for the assistance of your readers, set  
12 out the purposes that you had in mind in writing the  
13 book and developing your premises and explained the  
14 reasons you were writing the book. Am I right in that?

15                   A. That is correct.

16                   Q. And the fourth reason that you  
17 identified is set at on page (xv) and it is as follows:

18                   "The fourth reason I have written this  
19 book is to propose a new paradigm for  
20 forestry. Each new paradigm is built on  
21 a shift of insight, a quantum leap of  
22 intuition with only a modicum of hard  
23 scientific data."

24                   Now stopping there, Mr. Maser. Would you  
25 agree with me that it would be inappropriate for this



1 Board, given the nature of forestry issues generally in  
2 Ontario and the fuction that this Board serves, it  
3 would be inappropriate for this Board to adopt a new  
4 paradigm built on a shift of insight, a quantum leap of  
5 intuition with only a modicum of hard scientific data?

6 A. No, because every paradigm -- the one  
7 that we have been managing and are currently was  
8 derived exactly the same way. No paradigm is derived  
9 any other way.

10 I am not suggesting that the Board adopt  
11 a new paradigm. I am only saying that every new  
12 paradigm, the old one that we have been under or the  
13 next one or the next one, they all come about the same  
14 way; very little hard data, it is a shift in insight  
15 and intuition.

16 Q. Would you agree --

17 A. That is why the struggle between the  
18 two before the data catches up, and it has been that  
19 way historically. I do not see that changing.

20 Q. Could we go this far together, Mr.  
21 Maser, and that is, from a management perspective,  
22 basing management decisions on a shift of insight that  
23 is dependent on a quantum leap of intuition supported  
24 only by a modicum of hard scientific data, that's a  
25 very poor form of management decision making indeed?

1                   A. No, Ma'am, because that's what we are  
2 doing in the United States with the Forest Service now.

3                   MS. CRONK: Thank for your cooperation,  
4 Mr. Maser.

5                   THE WITNESS: My pleasure.

6                   MADAM CHAIR: Thank you, Ms. Cronk.

7                   Mr. Lindgren?

8                   MR. LINDGREN: Thank you, Madam Chair.

9 One moment.

10                  THE WITNESS: Madam Chair?

11                  MADAM CHAIR: Yes, Mr. Maser.

12                  THE WITNESS: When we are done would you  
13 do me the courtesy by giving me about two minutes to  
14 make one brief closing statement.

15                  MADAM CHAIR: All right, Mr. Maser.

16                  Mr. Lindgren, you are going to be how  
17 long?

18                  MR. LINDGREN: I have three questions and  
19 a half questions arising out of Ms. Cronk's  
20 cross-examination and one from Ms. Blastorah's  
21 cross-examination.

22                  MR. MARTEL: How long?

23                  MR. LINDGREN: It depends on the answers.  
24 Perhaps five or ten minutes.

25                  MADAM CHAIR: Okay, Mr. Lindgren.

1 MR. LINDGREN: Thank you.

2 RE-DIRECT EXAMINATION BY MR. LINDGREN:

3 Q. During Ms. Cronk's cross-examination  
4 yesterday, Mr. Maser, she asked you whether or not  
5 young growth or plantations can develop into old growth  
6 or older stages.

7 Can I you ask whether or not that would  
8 require a management commitment to allow those stands  
9 to proceed into the older stages as opposed to cutting  
10 them at a commercial rotation age?

11 A. Yes.

12 Q. Secondly, Ms. Cronk discussed with  
13 you the susceptibility of some old growth stands; i.e.,  
14 those stands found on productive land to fire, and she  
15 indicated that that susceptibility to fire might  
16 endanger adjoining stands of high timber value.

17 In your opinion, is that a sufficient  
18 ecological reason not to set aside and protect areas of  
19 native forests for the reasons that you have described?

20 A. Well, frankly, I didn't quite get the  
21 gist of that and I know we discussed it for a while.

22 If you have one stand here and another  
23 stand here, I would suggest they are equally  
24 susceptible to fire, so I don't see the issue.

25 Q. And then Ms. Cronk spent some time

1 with you discussing some of the principles and factors  
2 that you set out on page 5 of your witness statement  
3 and these are the principles wherein you contrast  
4 nature's design with man's design.

5 A. Correct.

6 Q. She asked you whether or not you had  
7 Ontario specifically in mind when you wrote those and  
8 you said no, but then you went on to indicate to the  
9 extent that, for example, clearcutting occurs or that  
10 plantations are established or that herbicides are  
11 applied, then certain of these concerns would apply to  
12 Ontario. Is that a fair --

13 A. To the extent that whatever these are  
14 are done in Ontario, which only Ontarions know, then  
15 they would apply. To the extent that they aren't, they  
16 don't. But this was not looked at, thought of or  
17 derived specifically with Ontario in mind in any way.

18 Q. Thank you.

19 MR. LINDGREN: I would like to explore  
20 that with you very briefly by filing, Madam Chair, the  
21 most recent MNR statistics and it is my understanding  
22 that the most recent copy available relates to the  
23 period 1988/1989. It was published in 1990, I believe.  
24 I would like to file that as the next exhibit.

25 I should indicate that I am thankful or

1 grateful to Mr. Dadds for securing enough copies for  
2 me.

3 MADAM CHAIR: This will be Exhibit 1688.

4 MR. LINDGREN: Sorry, Madam Chair, I  
5 missed the exhibit number.

6 MADAM CHAIR: 1688.

7 MR. LINDGREN: Thank you.

8 ---EXHIBIT NO. 1688: MNR Statistics for the years  
9 1988/1989.

10 MR. LINDGREN: Q. Mr. Maser, could I ask  
11 you to turn to pages 12 and 13 of this document.

12 A. Yes.

13 Q. Now, on page 12 we see a summary of  
14 silvicultural operations that occurred on Crown land in  
15 Ontario for the year ending March 31st, 1988.

16 If you look at the first table on page  
17 12, the third column from the left, we see total area  
18 cut on Crown land. Do you have that column?

19 A. Total Crown land?

20 Q. Yes.

21 A. Okay.

22 Q. And the total cut on Crown land on an  
23 even-aged management basis, we find a total of 199,974  
24 hectares and below that we see that uneven-aged  
25 management accounted for some 13,000 hectares of Crown



1 land for a total of 213,847 hectares.

2 Then keeping that figure in mind, it is  
3 put into some historical context by the other table on  
4 page 12 which sets out the year by year total for land  
5 cut not only on Crown land, but patent land.

6 Now, I understand even-aged management to  
7 be clearcutting, and to the extent that clearcutting  
8 occurs in Ontario and assuming these figures are  
9 correct, does that make your concerns, for example,  
10 about clearcutting relevant to this Board's  
11 consideration?

12 A. I am ill equipped to answer that  
13 because I do not know the distributional pattern of the  
14 clearcutting and how it is done.

15 Q. So it is very much dependent upon how  
16 it is do not, where it is done and the magnitude of the  
17 cut?

18 A. That is correct.

19 Q. So this Board should have regard for  
20 the evidence adduced by all the parties on the manner  
21 in which clearcutting has occurred in Ontario?

22 A. That is correct.

23 Q. And then turning to page 13, we see a  
24 summary of regeneration techniques and on the far  
25 right-hand column we see a total for all Crown land and

1 by far the most common regeneration treatment type is  
2 the planting of container stock we see that accounted  
3 for some 42,000 hectares and that's followed by the  
4 planting of bareroot stock which accounted for 27,815  
5 hectare and that was followed by artificial seeding in  
6 the amount 27,535.

7 Now, assuming those figures are correct  
8 and assuming that some of that planting took the form  
9 of the establishment of single species in certain  
10 areas, does that make certain of your concerns about  
11 plantations relevant to this Board's consideration?

12 A. I would think so.

13 Q. And then finally on this point, can I  
14 ask you to go down to the part of the table entitled  
15 Tending.

16 A. Tending?

17 Q. Tending.

18 A. Tending, okay.

19 Q. We see the second item under Tending  
20 is herbicide spraying and again in the right-hand  
21 column we see a total of 71,627 hectares of Crown land  
22 were subject to herbicide spraying in the year ending  
23 December 1st, 1989.

24 Again, assuming that is correct, does  
25 that make some of your concerns about herbicides or the

1 use of herbicides relevant to this Board's  
2 consideration?

3 A. Yes.

4 Q. Before I turn to my question arising  
5 out of Ms. Blastorah's cross-examination, I do have one  
6 final question arising from Ms. Cronk's  
7 cross-examination that occurred this morning.

8 I was somewhat confused by your answer  
9 and perhaps you could clarify this. Ms. Cronk asked  
10 you at the outset whether or not you had drafted the  
11 relevant terms and conditions that have been proposed  
12 by FFT and you said no, you had not. In fact, I  
13 believe you said you had not seen them.

14 Can you advise me whether you recall that  
15 these terms and conditions had been delivered to you or  
16 in fact discussed by you and FFT?

17 MS. CRONK: Sorry, I don't take any  
18 objection to the question, Madam Chair, but is my  
19 friend waiving privilege on this issue? Is he getting  
20 into advice?

21 MR. LINDGREN: No, I am just asking if he  
22 recalls.

23 THE WITNESS: No, I do not recall.

24 MR. LINDGREN: Q. Then my question  
25 arising out of the MNR cross-examination is this: Ms.

1       Blastorah asked you about the issue of forest  
2       fragmentation and cutting patterns and she asked you if  
3       the Board imposed a term and condition that resulted in  
4       smaller cuts on the landscape could that result in a  
5       fragmentation problem and I believe your answer was:  
6       Yes, in fact it could and you described some  
7       experiences you had in the the Pacific northwest.

8                   A. That is correct.

9                   Q. My question to you is this: Is it  
10       the smallness of the cut per se that gives rise to the  
11       concern, or is the concern based on the spacial and  
12       temporal distribution of those cuts within the  
13       landscape?

14                   A. The spacial and temporal distribution  
15       of the cuts within the landscape.

16                   Q. Thank you.

17                   MR. LINDGREN: Those are my questions,  
18       Madam Chair.

19                   MADAM CHAIR: Thank you, Mr. Lindgren.

20                   Mr. Maser, you had something you wanted  
21       to say to the Board.

22                   THE WITNESS: What you have undertaken  
23       with these hearings is the beginning of a great and  
24       wonderful adventure; a changing view of the art of  
25       forestry.

1                   It will be a difficult adventure because  
2           it is a journey into the unknown. As such it is  
3           fraught with fears. There are those who would forge  
4           blindly ahead and there are those that will resist  
5           changes at any cost. The path lies somewhere in  
6           between.

7                   Change which is the sole of the creative  
8           process is the master of the world, not us, much as we  
9           might wish it otherwise. Ours is but a tiny voice in  
10          the process of change. We can accept it or reject it,  
11          work with it or be dragged kicking and screaming by it,  
12          but we can no more stop change than we can halt the  
13          tides of the sea.

14                   I was asked to come here to speak about  
15          science. I have done my best to be of service, but  
16          after more than 20 years of playing scientist I would  
17          leave you with a caution. Science, like economics, is  
18          a socially crafted narrow way of thinking that is  
19          governed by the very stringent rules of immediate  
20          social acceptability and conformity.

21                   Science and scientists are no more free  
22          of social construction bigotry than any other  
23          professional in any other line of endeavor. Science  
24          is, therefore, a veil we draw before our eyes through  
25          which we see but dimly. Science yet is isolated in the



1 intellect and, therefore, often hides us from the  
2 truth.

3 As science is of the intellect so truth  
4 is of the heart. This being the case, neither I or  
5 anyone else can tell you what is right. I myself do  
6 not know what is right. I can only do what is right.  
7 I can only follow the inner-dictates of my heart.

8 When we have learned to think with our  
9 hearts as well as we think with our minds such hearings  
10 as this will no longer be necessary because life after  
11 all is not a matter of economics or technology or  
12 science or even sight. Life in sum total is a matter  
13 of faith.

14 Thank you for the honour of allowing me  
15 to share a little bit in your magnificent journey into  
16 the future.

17 MADAM CHAIR: Thank you very much, Mr.  
18 Maser. The Board appreciates you coming from Oregon  
19 to give your evidence. Thank you very much.

20 THE WITNESS: My pleasure.

21 MADAM CHAIR: We will adjourn now  
22 until -- are we sitting next Wednesday, Mr. Lindgren?

23 MR. LINDGREN: That's right. There might  
24 have been a potential problem with Wednesday afternoon,  
25 and I am unclear if that is still a problem or not.

1                   MADAM CHAIR: Have Ms. Swenarchuk get in  
2 touch with us before tomorrow night.

3                   MR. LINDGREN: Certainly.

4                   MS. SEABORN: 10:30 on Monday, Madam  
5 Chair?

6                   MADAM CHAIR: 10:30 on Monday morning.  
7 Thank you.

8  
9                   ---Whereupon the hearing was adjourned at 12:25 p.m.,  
10 to be reconvened on Monday, February 4, 1991  
11 commencing at 10:30 a.m.

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